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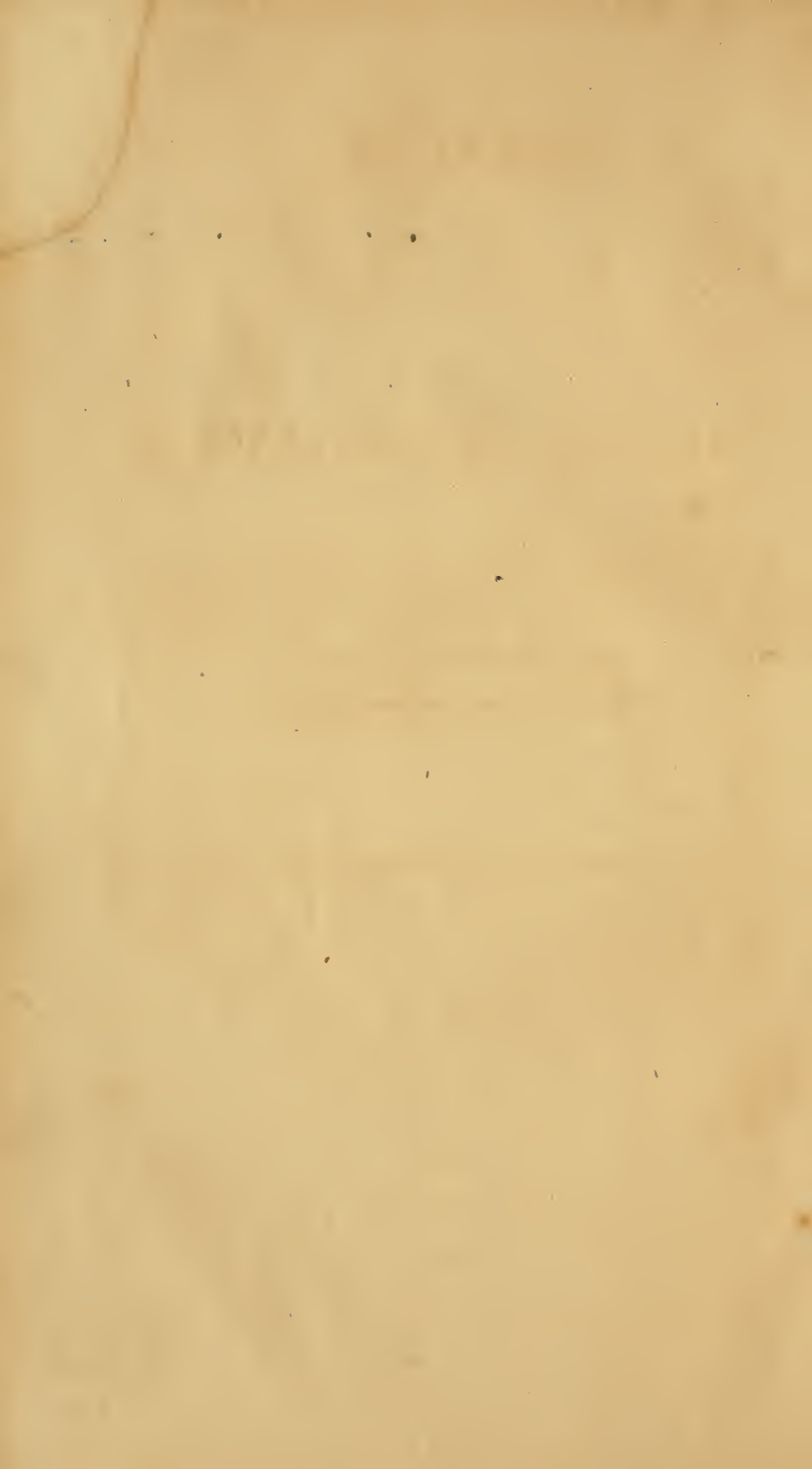
with the high regards
of A D

My dear Mr. [unclear]

With the best of wishes
I am, Sir, very respectfully,
Your obedient servant,
[unclear]



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MANUAL



OF

MEDICAL JURISPRUDENCE.

BY AMOS DEAN, ESQ.

Prof. of Medical Jurisprudence in the Albany Medical College.

FOR THE USE OF HIS CLASS.

ALBANY:

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1840.



DEFINITION.

Medical Jurisprudence is that science that applies the principles and practice of medicine to the elucidation and settlement of questions that arise in courts of law.

Principal Departments embraced in this Science.

- | | |
|--|-------------------------------------|
| 1. Infanticide. | 7. Poisons, including adulteration. |
| 2. Wounds and contusions. | 8. Persons found dead. |
| 3. Impotence and Sterility. | 9. Presumption of survivorship. |
| 4. Hermaphrodites. | 10. Age and identity. |
| 5. Pregnancy, embracing legitimacy and delivery. | 11. Insurance upon lives. |
| 6. Rape. | 12. Insanity. |
| | 13. Feigned diseases. |

MANUAL.

INFANTICIDE.

This involves an inquiry into the signs of life or death of the child before or during delivery.

During pregnancy life is inferred—1. From the good health of the mother; 2. From the progressive increase of the abdomen in size; 3. From the motion of the fœtus being experienced.

The proofs of life during delivery are—1. The limpidity of the waters; 2. The regularity of the pains and their progressive increase in strength; 3. The pulsation of the heart and umbilical cord of the fœtus, or that of the anterior fontanelle; 4. The swelling, tension and elasticity of the presenting part.

Signs of death during pregnancy, are—1. A want of motion in the child; 2. The navel is less prominent; 3. The milk recedes and the breast becomes flaccid; 4. A sense of lassitude and coldness is experienced by the mother, with head-ache and nausea; 5. A suspension of the indications of progressive pregnancy.

The signs, during delivery, of the death of the fœtus, are—1. The absence of motion; 2. The presence of blackish fœtid discharges, arising from putrefaction; 3. The œdematous feel of the presenting part; 4. The cuticle coming away from the head in large flakes; 5. The bones of the cranium being detached from each other and floating in the brain; 6. The umbilical cord being cold, brown, flaccid and destitute of pulsation.

In reference to the estate by the curtesy, it is necessary to determine whether the child was born alive or dead.

This estate is where a man marries a wife seised of an estate of inheritance, and has by her issue born alive, which was capable of inheriting her estate.

The fact of life must be collected from all the indications furnished, such as crying, motion of the limbs, respiration, beating of the heart and red color and warmth of the skin.

The cæsarian operation destroys the tenancy by the curtesy.

An infant prior to birth is, for all beneficial purposes, considered as born.

It is generally supposed that an infant is not born *viable*, or capable of living, short of seven months after conception.

Infanticide means the criminal destruction of the fœtus in utero, or of the child after it is born. The first is generally called abortion, the last infanticide.

In questions concerning infanticide, the two great points are—1. Whether a fœtus in utero has been actually destroyed; 2. Whether this has been effected by intentional means.

Physiologically considered, there is no period of gestation at which the fœtus is not to be considered alive.

Within the two first months of pregnancy, no examination of the mother can satisfy as to the fact of abortion.

Afterwards the signs of delivery will be more apparent.

Where the delivery is followed by the death of the female, the uterus will differ from its unimpregnated state—1. In size. In the gravid state it is from ten to twelve inches from top to bottom ; 2. In shape. It is at first flat or triangular ; in its gravid state ovoid ; 3. In thickness ; 4. In the enlargement of its blood vessels ; 5. In its inner surface and the placental mark ; the last will be of a dark color and have a gangrenous appearance ; 6. In its ligaments. The broad ones will be effaced and the round elongated and thicker.

The fallopian tubes are less convoluted, larger, more vascular, and of a purplish appearance.

All these indications may be found in the case of hydatids in the uterus, and in the case of moles.

To determine which the contents of the uterus must be examined.

The presence of corpora lutea afford an indication of pregnancy.

The first thing to ascertain, is, whether it is a fœtus that has been expelled.

The age of the fœtus is judged of from its length, weight, and relative situation of the centre of the body.

Each month adds about two inches to the length, and develops relatively faster the lower part of the body, so that the centre gradually removes downward until it reaches the umbilicus.

The first thing to be produced in evidence is a dead fœtus, or a dead infant.

The criminal agents generally employed to destroy the fœtus are—1. Venesection ; 2. Leeches applied to the anus, insides of the thighs, or the vulva ; 3. Emetics ; 4. Cathartics ; 5. Diuretics ; 6. Cantharides ; 7. Nitre ; 8. Emmenagogues, among which are, savine, mercury, polygala seneca, pennyroyal.

Among the most active is spurred rye or ergot. It endangers the life of the mother as well as the fœtus.

Another plant possessed of great power in that respect is the *actæa racemosa* called the black cohosh or squaw root.

Digitalis also exerts an influence upon uterine action.

Local means may be resorted to in aid of these agents.

These may be—1. Blows and injuries on the loins and abdomen. In such case the death is usually preceded by hæmorrhage ; 2. The introduction of instruments into the uterus, to rupture the membranes and induce premature action of the womb.

These means are—1. All uncertain in their operation upon the fœtus ; 2. Always endanger the life of the mother ; 3. Sometimes destroy the mother without affecting the fœtus.

Abortion may arise from many accidental causes, among which are—1. Diseases, violent exercise, accidental falls, a sudden shock of the body ; 2. Any violent passion of the mind, a great noise, excessive venery, accidental blows.

In infanticide proper, the principal points of enquiry are, as to the size and maturity attained by the child, as to the fact whether it was or was not born alive, and if living at birth, as to the means by which its death was effected.

The inquiry as to life or death at birth is one of the most important in the whole range of medical jurisprudence.

There are three great functions of life, the cerebral, circulating and respiratory.

In fœtal life the circulating alone is active.

It is in the circulating and respiratory functions alone, and the organs in which they are exercised, that the medical jurist expects to find the indications of life or death in infants recently born.

There are reckoned four proofs of the blood having circulated after birth. These are derived from—1. The character of the blood. If there is no difference between the venous and arterial blood, the presumption is that the child was born dead ; 2. The coagulation of fœtal blood is not so firm, consistent and solid as that of living infants ; 3. Fœtal blood exposed to the atmosphere forms a coagulum of a brown red, and does not become florid like that of the adult ; 4. In fœtal blood the coloring matter is darker, there is no fibrous matter in it, and it does not contain phosphoric acid.

The condition of the heart and blood vessels must be examined.

When the foramen ovale is closed it is evidence that the child was born alive—the closing, however, generally takes two or three weeks. The same applies to the ductus arteriosus—1. The fœtal openings are not obliterated immediately after birth ; 2. The period at which they are obliterated is variable ; 3. The foramen ovale and ductus arteriosus are generally obliterated towards the eighth or tenth day ; 4. The umbilical arteries obliterate first, then the umbilical vein, the ductus venosus, the ductus arteriosus, and finally the foramen ovale ; 5. Their obliteration proves that the child was born alive ; 6. It is impossible to infer from the fact of their not being obliterated, that the child has not respired, as the obliteration is not made immediately after birth.

Conclusions in regard to the umbilical cord are—1. If it be fresh or commencing to wither, the infant may either have been born dead, or have lived only a short time ; 2. If the cord has either commenced desicating, or be completely desicated, the infant has lived at least one day.

The cord withers, desicates or separates the fourth or fifth day.

Another great source of indications is the distribution of the blood in the different organs of the body. The inquiry is generally confined to the lungs.

The great object of examining the lungs, is to ascertain whether they are filled with blood or not. If they are, the infant has breathed after birth ; otherwise, if not.

Two modes have been proposed to ascertain this—1. Cutting the substance of the lungs with a knife. If filled there will be effusion ; otherwise, if not ; 2. Ascertaining the weight of the lungs. To arrive at this, there is the *static test*. The greatest weight of the fœtal lungs is 1170 grains. A greater weight than this furnishes a presumption of respiration. According to Ploucquet's test, the weight of the fœtal lungs is one-seventieth that of the whole body, while after birth it is only one-thirtyfifth.

Extravasation of blood on the body of the child is evidence of life after birth.

Respiration is inferred to have taken place after birth—1. From the general configuration and size of the thorax—small and flattened in the fœtus ; 2. From the volume or size of the lungs—in the fœtus small ; 3. From the relative situation of the lungs—in the fœtus they occupy a small space at the upper and posterior part of the thorax ; 4. From the

shape of the lungs—in the fœtal lungs the lower margin of the left upper and right middle lobes, are sharp and pointed. 5. From the color of the lungs—the fœtal are a brownish red, the adult scarlet or pale red. 6. From the consistence or density of the lungs—the fœtal are dense and solid, and when cut do not crepitate; in the adult they are soft and spongy, and crepitate when cut into; 7. From the specific gravity of the lungs. This is what is called the hydrostatic test. That is this: if the lungs of a child float in water it must have respired, and therefore been born alive. The lungs in such case are specifically lighter than water. Lungs that never have respired are specifically heavier. And when they sink it affords an indication that the child was born dead.

To this, two classes of objections have been urged. One going to show that the lungs may float, the other that they may sink, in water, and yet that the child may have been born alive.

An objection growing out of the first is, that lungs that have undergone putrefaction, will float in water.

To this it is replied—1. That a change in color and general appearance is produced by putrefaction; 2. That when the lungs are putrefied air bubbles appear on their surface; 3. That air is extracted with great ease and facility from lungs that have undergone putrefaction, not from those that have not; 4. That air generated by decomposition is confined to the surface of the lungs, and that a portion cut from the internal part would sink; 5. That it can generally be determined whether the lungs are in a putrefied state or not by an examination of other parts of the body, particularly the viscera.

It has been asked whether any indications can be drawn as to life or death when the lungs are in a putrid state.

It is answered—1. That putrefied lungs which have respired, have always a crepitus when cut into; not those which have never respired; 2. That upon squeezing out from sections of the lungs the matter developed by putrefaction, they will sink if they are from a child born dead, otherwise they will continue to float.

Another objection is, that the lungs may be made to float in water from artificial inflation.

To determine whether the air in the lungs is the result of respiration or inflation, the following tests are recommended—1. Natural respiration produces vascular distension of the pulmonary organs, and therefore in children still born, notwithstanding artificial inflation, the arteries and veins of the lungs are found destitute of blood and collapsed; 2. Ascertain the absolute weight of the lungs by the static test; 3. Air introduced by artificial inflation may be abstracted by pressure, so that their original density will return, and they will sink in water, which cannot occur in case of actual respiration; 4. From the difficulty of artificial inflation the inferior extremity of the left lung will usually be found in a collapsed state.

The conclusions arrived at in view of all these objections are—1. That when the lungs float in water it must be from one of four causes: natural respiration, putrefaction, emphysema, the artificial introduction of air; 2. As the lungs may float from other causes besides respiration, their mere floating is no proof that the child was born alive; 3. As, however, it is possible to discriminate between the floating of natural respiration, and of that which is the result of other causes, it follows; 4. That with due precautions, the floating of the lungs may be depended upon as a decided proof that the child has been born alive.

Another class of objections go to show, that a child may have been born alive, notwithstanding the lungs sink in the water.

The first is, that a child may have breathed, and yet the lungs, from disease, may sink in water.

To this it is answered, that the lungs never having exercised their function prior to birth, cannot well be diseased; but if so, the disease itself will be apparent.

Another objection is, that the respiration may have been so feeble and imperfect that the lungs will sink, but this may be obviated by trying different parts of them.

The conclusions arrived at in reference to these objections are—1. That when the lungs sink in water it must be from one or the other of the following causes: the total want of respiration, feeble and imperfect respiration, some disease of the lungs rendering them specifically heavier than water; 2. As the lungs may sink from other causes than the absence of respiration, their mere sinking is no decisive proof of the child having been born dead; 3. As the sinking from the want of respiration may easily be distinguished from that which is the result of other causes, it follows—4. That with due precautions, the sinking of the lungs is a safe test that the child was not born alive.

The following rules are to be observed in applying this test; 1. Weigh the child, observing the proportion of its parts; 2. Open the chest, noting all the appearances there presented; 3. Examine the appearances about the heart and lungs; 4. Place the lungs and heart in water of the temperature of the surrounding atmosphere, and see whether they float or sink, and how far; 5. Place the lungs alone in the water and see whether they sink or float; 6. Separate the two lobes, place each in the water and observe the difference, if any, in the floating or sinking of each; 7. Divide each lobe into a number of pieces, preserve the fragments of each separate, and upon each fragment repeat the same experiment; 8. Observe if there be any crepitation on cutting the lungs, and whether there is blood, or indications of disease; 9. If any of the divided sections float, squeeze them forcibly in the hand, then replace them and mark the difference, if any.

The diaphragm as well as the lungs should be examined. Respiration causes the diaphragm to descend.

Indications are also derived from the intestines. They are generally evacuated shortly after birth, if the child has been born alive, never before, except in one instance.

The bladder generally prior to birth contains urine. If after birth it contains none, the presumption is that it has been evacuated by the efforts of the infant.

If from any one or all these tests, life, after birth be satisfactorily established, it becomes material to inquire in what manner it has been destroyed. The means may have been innocent or criminal. Among the former may be; 1. A neglect to remove the child from that state of supination in which it sometimes comes into the world; 2. Life may be lost from the suddenness and rapidity of the labor; 3. The umbilical cord by twining around the neck may induce cerebral congestion and strangulation; 4. Its sudden rupture may result in fatal hemorrhage; 5. There may be malformation of organs inconsistent with the continuance of life after birth; these may occur of the heart, the respiratory organs, or the alimentary canal; 6. There are diseases which have commenced anterior to birth, and have subsequently destroyed life; such are the morbus cæruleus or blue disease, organic diseases, pericarditis, diseases of the alimentary canal, &c.

The criminal means resorted to for the purpose of destroying the life

of the new-born infant are divided into those of omission and those of commission. Among the former are :

I. A criminal neglect of tying the umbilical cord. Death from this cause produces ; 1. Paleness of the surface and waxy appearance ; 2. Paleness and loss of color in the muscles and viscera ; 3. Absence of the usual quantity of blood in the heart and blood vessels.

II. Exposure to cold with the design of destroying life. Principal signs of death by cold are ; 1. A naked, stiff, discolored and shriveled appearance ; 2. Great internal vessels gorged with blood ; 3. Effusions of blood into the cavities, while the superficial vessels are contracted and empty.

III. The intentional omission to supply nourishment ; here in addition to many of the appearances last mentioned, there will be ; 1. General emaciation of the body ; 2. Stomach and intestines empty ; 3. Gall bladder enlarged ; 4. Bile effused in the stomach and intestines.

The destruction of life by means of commission embrace ; 1. Wounds, contusions and injuries. These after birth and the establishment of the circulation, produce ecchymosis, or extravasation. This must not be confounded with discolored spots occurring at the commencement of putrefaction ; 2. The introduction of needles into the body, most commonly into the brain, spinal marrow, temples, neck, thorax or abdomen. The puncture must here be observed, and the course of the wound traced ; 3. Luxation and fracture of the neck. This will cause local derangement, while the extravasation of blood and sanguineous infiltrations will afford indications that there had been life ; 4. By asphyxiating or putting a stop to its respiration, either by drowning, hanging, smothering, suffocating or exposure to noxious airs.

In all cases the first proof to be deduced is a dead infant.

To determine the length of time that has elapsed between the birth of a child and its death, reference may be had to the following things, viz : the state ; 1. Of the foramen ovale ; 2. Of the ductus arteriosus ; 3. Of the ductus venosus ; 4. Of the umbilical cord ; 5. Whether putrefaction has yet commenced.

WOUNDS AND CONTUSIONS.

These embrace all lesions of the body.

Contusions are followed or attended by ecchymosis or blackness.

When this is occasioned by injury it generally appears within a short time after its infliction.

It is red and bluish, then black or lead color, violet and yellow, and is marked most in the centre.

These must not be confounded with cadaverous lividities, which appear on the lowest depending parts some time after death. In the latter there is no effusion or infiltration of blood.

Concussion is the shaking of an organ by a blow or fall.

This may be ; 1. Of the brain, which is followed by hæmorrhage from the ears, nose or eyes, or by death, or, 2. Of the spine, which may cause a paralysis of all the parts the nerves of which arise below the section injured ; or, 3. Of the liver, which may be followed by hepatitis, rupture, hæmorrhage and death ; or, 4. Of the stomach, where a violent blow in the epigastric region will suddenly extinguish life by paralysing the whole nervous system.

Wounds are divided into four classes—1. Such as are slight, or cer-

tainly not mortal; 2. Such as are dangerous; 3. Such as may become accidentally mortal; 4. Such as are certainly mortal.

In the first, no organs are injured whose functions are essential to life. The second includes those which, without being mortal, are not exempt from danger. The third, those which have not naturally a mortal termination, but in which that occurs by some accidental circumstance. In the fourth, death is the inevitable result under all circumstances.

Wounds are an invasion upon the living principle, which may be said to result from the union and reciprocal influence of the functions which compose it, particularly of the three great systems, the circulating, nervous and respiratory.

The probable mortality of a wound depends upon its nature, locality, depth, the constitutional condition, and the relative value and importance to life of the organ injured.

To these should be added the extravasation of blood caused, and the hæmorrhage produced by it.

The circumstances of the individual case should also be considered in reference, 1. To constitution and age; 2. To habits, disposition of organs, antecedent or co-existent maladies.

There sometimes occurs a transposition of parts, the heart being on the right side of the thorax, the spleen occupying the place of the liver, &c. As the criminal intent is principally to be considered in crime, the criminal ought only to be held responsible for what would have been the natural result, had the disposition of the parts been the same as they are generally found to be.

There are certain diseases, such as erysipelas and tetanus, that are known frequently to accompany, or follow, as the consequence of wounds, but which may nevertheless arise independently.

The individual case should be considered in reference, 1. To the passions of the patient, to negligence and refusal to submit to improper treatment; 2. To the insalubrity of the atmosphere; 3. to the mode of treatment.

Wounds of the head are the most uncertain, and prognostics concerning them the most unsatisfactory.

Fractures of the cranial bones are dangerous as they are produced by injuries capable of causing concussions.

The injury is often found in a part of the skull different from that which receives the blow.

Fractures of the ribs are not generally dangerous.

Wounds of the neck are dangerous from the number and importance of the vessels, nerves and other organs there situated.

Contusions and wounds of the chest may be followed by pleuritis, pneumonia, and various disorganization of the lungs, pericardium and heart, and are therefore serious injuries.

Wounds of the abdominal parieties are dangerous, as being likely to cause peritonitis.

Can a wound made before, be distinguished from one made after, death?

In a wound inflicted some time before death, there are usually more or less marks of organic action, such as inflammation, suppuration or cicatrization.

In a wound inflicted in the last moments of life, its edges are more or less retracted and tumid. It is covered with a clot of blood and there is a sanguineous infiltration in the cellular tissue.

When a wound is made some hours after death, its lips are also retracted, but they are pale and the cellular tissue not infiltrated.

A wound made immediately after death cannot be distinguished from one made during the last moments of life.

The great points of legal inquiry are with what intent the wound was inflicted, and whether the death has, in fact, resulted, as a direct consequence, from its infliction.

Although the person wounded labor under a mortal disease, yet if the death be accelerated by a wound, the person inflicting it is held criminally responsible.

So also it is murder if the party die of a wound not originally mortal, but which became so in consequence of negligent or unskilful treatment, but it is otherwise where the death arises not from the wound, but from the unskilful treatment.

Mayhem is the violently depriving another of the use of such of his members as may render him the less able, in fighting, either to defend himself or annoy his adversary.

In this state, the cutting out or disabling the tongue, putting out an eye, slitting the lip, slitting or destroying the nose, cutting off or disabling any limb or member with intent to kill, or commit any felony, subjects to imprisonment in the state's prison for not less than seven years.

IMPOTENCE AND STERILITY.

The domestic relations are among the first to which we are subject, and the last from which we are exempted.

A knowledge of impotence and sterility is required—1. Because a rape may be contested on the ground of physical incapacity; 2. Legitimacy may, on the same ground; 3. Physical incompetency to enter into the marriage state at the time of the marriage is, if application be made within two years, a sufficient ground for divorce.

Impotence means an inability to perform the generative act.

Sterility leaves the act unattended with any fruitful result.

The first is applicable to the male, the last to the female.

Conditions essential to the act are—1. Erection; 2. Intromission; 3. Ejaculation of semen.

These are each and all necessary. The first and third belong to the male, the second to the female.

The causes of impotence are—1. Moral; 2. Physical or organic. Both operate in the male almost invariably by destroying the first condition.

The first are generally temporary. They consist mostly—1. Of excessive modesty; 2. Fear of inability; 3. An unexpected discovery; 4. The action of some other propensity, introducing a disturbing power.

The intimate connexion existing between the moral and physical nature of man is here strongly displayed.

The second, or physical causes, are more permanent. They are—1. Age. The procreative power continues from puberty to the sixty-fifth year; 2. A habitude of chastity, as in hermits; 3. A habitude of indulgence; 4. Certain diseases, such as marasmus, peripneumony, and others, which affect primarily the sensitive system, and are accompanied with debility. Some diseases stimulate the generative power, and have been known to give it where it did not before exist; 5. Abuses of narcotics, acids, &c.; 6. Cold. A cold climate produces little love and less jealousy.

The curability of impotence is determinable from its cause. The incurable consist often of malformation of the penis, such as—1. The entire absence of penis, or of penis and testicles, or of either. One testicle may be wanting and yet there may be no impotence. They may both be absent from the scrotum; 2. A termination of the urethra above the pubis. When the urethra terminates at any part of the penis, if it be so low down as to enable it to enter the vagina, the person cannot be pronounced impotent.

The curable causes of impotence are—1. Atony of the parts; 2. A retraction of the penis; 4. Obliteration of the canal of the urethra; 4. Urethral canal opening in a wrong place.

Where impotence exists from constitutional causes, there are the following indications—1. The hair is white, fair and thin; 2. The beard is wanting; 3. The countenance is pale; 3. The flesh soft and without hair; 5. The voice clear, sharp and piercing; 6. The eyes sorrowful and dull; 7. The form round; 8. The shoulders straight; 9. The perspiration acid; 10. The testicles small, withered, pendulous and soft; 11. The spermatic cords small; 12. The scrotum flaccid; 13. The gland of the testicles insensible; 14. No capillary growth on the pubis; 15. A moral apathy; 16. Pusillanimity and fear on all occasions.

The law presumes the husband to be the father of every child conceived during wedlock.

Intercourse between husband and wife is to be legally presumed where personal access is not disproved.

Impotence and sterility in females are included in three classes, viz: 1. Those depending on the organs which receive the male fluid, such as the genital fissure, the vagina and uterus; 2. Malformation or diseases of the organs that transmit it to the ovaries, and reconvey the embryo to the uterus; these are the fallopian or uterine tubes; 3. Malformation or disease of the ovaries, or organs which supply the germ for fecundation.

The vagina may—1. Be closed by a fleshy substance; 2. May be wanting; 3. May open into the bladder or rectum; 4. May be too short; 5. May be diseased.

The constitutional causes of sterility in females are principally four—1. Too early marriage; 2. General ill-health; 3. Too frequent sexual intercourse; 4. Dysmenorrhea.

General conclusions in regard to impotence should be—1. That the absolute and incurable causes are few in number; 2. Moral causes cannot be much considered, because they are seldom permanent, and if allowed, might serve as an excuse; 3. To render a person impotent, there should be permanent malformations or accidental lesions, evident to the senses, and which destroy one of the conditions formerly mentioned.

HERMAPHRODITES.

These are recognized by the common law.

The old French law allowed them to choose their sex.

There can be no union of both sexes in one, so as to give the power of exercising either.

A dancing master was not allowed to maintain slander for being called an hermaphrodite—1. Because there are no such; 2. Because if he had been it was no injury.

There are many doubtful formations, so as to render it doubtful as to which sex they belong.

There are three classes of them—1. Those which exhibit a mixture of the sexual organs, but neither of them entire; 2. Male individuals with unusual formations of the urinary and generative organs; such as shortness or deficiency of penis, whether opening at the glans or into a rima in the perineum; 3. Females with unusual formation of the generative organs; such as an enlarged clitoris, which occurs in warm climates, or a prolapsed uterus.

There are, in the two sexes, what may be called analogous organs. These are, the penis and clitoris; the scrotum and the labia; the testes and the ovaria; the prostate and the uterus.

No two of these are ever found together in the same individual.

In cases of doubt as to sex, reference should be had to constitutional appearances, such as the presence of hair and beard, the breadth of the hips compared with the shoulders, the voice, &c.

PREGNANCY.

This subject is important—1. Because it affects the honor of husband and wife; 2. It suspends the administration of justice; 3. It renders assault and battery a felony when abortion occurs; 4. It may be pretended from a variety of motives.

The constitutional signs of conception are—1. A change in the moral and intellectual faculties; 2. Languor and want of vivacity in the eyes; 3. A blackish, livid, or leaden colored circle surrounding the eyelids; 4. Length of nose, small mouth, changed countenance, strong voice, full neck, odorous transpiration, decided character, violent passions; 5. Suppressed menses, firm mammæ; 6. The nipple prominent, areola enlarged, and color browner; 7. Unaccustomed sadness, tendency to fainting, horripilations, colic and rigors; 8. Pulse more frequent, weaker, temperature increased, transpiration more abundant, urine more copious, turbid and cloudy, secretions increased, hepatic functions disturbed, spots on the face and skin; 9. Taste and digestion depraved, anorexia, nausea, inappetence and vomiting, innutritious food and drinks desired; 10. Towards the latter part of pregnancy the digestive functions are deranged; 11. There is great irritability of temper; 12. Giddiness, drowsiness, dimness of sight, convulsions, palpitation of the heart, pain in the side; 13. Liability to hæmorrhoids, stranguary, fluor albus, pains in the hips, numbness of the extremities; 14. Erratic pains about the face, ears and teeth; 15. Varicose veins in the legs, thighs and abdomen; 16. Anasarca swellings.

The uterine or sensible signs of pregnancy are—1. Enlargement of the abdomen; but this may occur in dropsy, tympanities, hydatids, moles, polypi, &c.; 2. Active and passive movements of the fœtus; these occur about the fifth month; 3. The evidence afforded by touch, or vaginal examination; this is to ascertain the state of the os and cervix uteri in the different stages of gestation; 4. Evidence of fœtal and placental pulsations by auscultation. This discovers, *a.* the action of the fœtal heart; the pulsations are double and frequent; are perceptible after the 5th month; are generally in the lower part of the abdomen, but vary with the position of the child; *b.* the pulsation of the placenta, and the placental sound. The place this occupies never changes, but varies in different persons. It is usually present in the fourth month. This and the action of the fœtal heart are commonly found on opposite sides of the body.

The following conclusions have been arrived at—1. Fœtal and placental pulsations, when discovered by auscultation, are positive proofs of pregnancy; 2. Prior to the fourth month the diagnosis is uncertain; 3.

During the five succeeding months better evidence is afforded by the progress of uterine development; 4. There is no infallible sign of pregnancy except that afforded by auscultation.

The signs of real pregnancy enable a detection of feigned cases.

Superfoetation is the conception of a second embryo during the gestation of the first.

It has occurred as late as the sixtieth day after the first conception.

Its occurrence generally, if at all, is within the first two or three weeks.

It is not so material in reference to medical jurisprudence, as it is the *first birth*, not the *first conception*, that is there regarded.

LEGITIMACY,

Is a subject often discussed in courts of justice.

It is evidenced chiefly by the duration of pregnancy.

This has been sometimes fixed by law.

The Roman law fixed it at ten months.

Neither English nor American law assigns to it any precise period.

The time generally admitted for the duration of pregnancy is ten lunar months, or forty weeks.

There are, however, reported instances where it has been protracted to the 11th, 12th, and even the 13th month; Tracy relates one at 14 months.

There is much, however, in the reasoning of Louis, that the fœtus, at a fixed period, has received all the nourishment of which it is susceptible from the mother, and becomes then a foreign body.

Grief and the depressing passions have been relied upon by some, as protracting pregnancy, but these would sooner produce abortion.

It is now generally conceded that pregnancy may be protracted, but without assigning it any precise or definite limits.

Each case must be judged of under its own circumstances.

Some of these circumstances are—1. The signs and indications of pregnancy, and when they appeared; 2. The order of their succession; 3. The influences and passions to which the mother has been subject; 4. The general health and habit of body; 5. Her associations with others; 6. The continuance of labor pains; 7. The appearance of the infant when born, as to its maturity or immaturity.

There are instances of contracted as well as protracted pregnancy.

There is, in many females, a disposition to expel the child before the ordinary time. This sometimes occurs as soon as the seventh month.

A mature child born before full seven months after the alleged connexion, should be pronounced illegitimate.

Questions of contested paternity sometimes arise, as where a widow marries within a few days after the death of a former husband, and is subsequently delivered of a child which may belong to either.

The English law allows a child in such case at its maturity to choose which of the fathers he pleases.

DELIVERY may sometimes be pretended for the purposes of deception.

Its real signs must be known in order to judge of pretensions.

These are observable—1. In the sexual organs. In the first days after

delivery the labia are dilated, red, tumified, and inflamed; the vulva open; the anterior margin of the perineum torn or lax; 2. The uterus. Its orifice is soft, tumid and dilated, more voluminous, so as to be felt above the pubis; 3. The face is pale, eyes sunken and surrounded by a purplish colored ring; 4. The skin of the abdomen is soft, lax, lies in folds, and is traversed by the lineæ albicantes; 5. The breasts are tumid and hard, and emit a fluid on pressure, at first serous, afterwards whiter. The areola round the nipples are dark colored; 6. The lochial discharge. This is distinguishable from menstruation by its peculiar odor. When milk is secreted during its discharge, it is a satisfactory indication.

Either one of these may not singly be sufficient, but they all are so within the first six or eight days, not after.

A woman may be delivered without her knowledge, if intoxicated, stupified by narcotics, attacked with apoplexy, syncope, delirium or idiocy.

In cases of concealed delivery, the physician should attend—1. To the indications of previous pregnancy; 2. To the proofs of recent delivery; 3. To the connexion between the supposed period of parturition, and the state of the child that is found. Recent birth is indicated by redness of the skin, and attachment of the umbilical cord to the navel.

Delivery is sometimes pretended. This is contemplated under three points of view—1. Where the female has never been pregnant. This is easily detected; 2. Where the pretended pregnancy and delivery have been preceded by one or more deliveries; 3. When the female has been actually delivered, and substitutes a living for a dead child.

Monsters have been divided into three classes—1. Those that are so by excess; 2. By defect; 3. By alteration or wrong position of parts.

The first are born with an increased number of organs or members.

To the second belong the acephalous, and those destitute of lungs or other material organs. They rarely survive birth.

The third class is seldom discoverable until after death.

The law allows all having human shape to inherit.

RAPE,

Is the forcible carnal knowledge of a woman's person against her will.

The injured person is allowed to be a witness, but her testimony should be strictly scrutinized.

It often becomes necessary to examine into the signs of virginity; these are—1. The existence of the hymen. This is not conclusive; 2. Narrowness of the vagina; 3. The appearance of the carunculæ myrtiformes, supposed by some to be the remains of the hymen.

Other signs are—1. Pain during the first connexion; 2. Blood from the rupture of the hymen; 3. Red and tumid appearance of the labia and nymphæ; 4. Rupture of the fourchette.

These signs are all equivocal and reliance should be placed rather on the number that concur, than on any single one.

The signs of defloration are the most evident on the youngest subjects. The marks of frequent intercourse are—1. The lips of the pudendum are flaccid and distended; 2. The clitoris is enlarged, and its prepuce covers the glans; 3. The nymphæ are enlarged, and of a lighter color; 4. The orifice into the urinary passage is more open and exposed; 5. The hymen is wanting; 6. The carunculæ myrtiformes arise at the entrance into the vagina; 7. The vagina is enlarged and spacious; 8. The wrinkles of the

vagina are less prominent; 9. The orifice of the uterus approaches nearer the orifice of the vagina.

The physical marks afforded by the organs of generation would be the same whether the connexion was voluntary or forced.

There may be marks of violence on other parts of the body, but these may have been voluntarily inflicted.

The relative age, strength and state of mind of both parties must be considered.

In children the organs will exhibit sufficient evidences of injury.

With an adult female, in perfect health, the commission of the crime might reasonably be presumed impracticable, without exhaustion, insensibility, syncope, intoxication, or the influence of narcotics.

In a sleep produced by narcotics or intoxication, a female can be violated without her knowledge.

The state of mind of the woman is material.

One proof of violation is venereal infection, when the accused is affected, and the time corresponds.

There is sometimes a discharge of purulent matter from children, that may be mistaken for gonorrhœa.

Violation may be followed by conception, the last not depending on the volition of the sexes.

The strength of motive of the female should be investigated, and with that view the size of the cerebellum and activity of the temperament should be duly considered.

Rape has, in many countries, been punished with death.

Imprisonment is generally adopted through the United States.

For ravishing a female child under ten years, and forcibly ravishing a woman of ten years and upwards, the punishment is imprisonment in state prison not less than ten years.

Children under twelve years of age are incapable of giving consent.

It is held now not to be necessary to prove emission, a full and perfect penetration being sufficient. The emission will be presumed.

POISONS.

Poisons are those substances which are capable of altering or destroying, in a majority of cases, some or all the functions necessary to life.

Poisons have been by some considered as relative, that is, as fatal to some organizations but not to others. Those, however, which produce direct disorganization, such as the concentrated mineral acids, are equally fatal to all living fibres.

Poisons may be introduced into the system, 1. Through the nose, in the form of odors; 2. Through the lungs, by inspiration; 3. They may find their way into the stomach through the mouth and esophagus in the form of food; 4. Into the intestines, by the rectum, in the form of injection; 5. Into the system generally, through the medium of the skin, by the means of absorption.

Poisons are very different as to the length of time in which they operate. The concentrated mineral acids destroy life very soon after their introduction.

The action of poisons may be considered as local and remote.

The effects of the first are of three kinds—1. Such as decompose chemically, or corrode the part to which they are applied; 2. Such as inflame or irritate the organization; 3. Such as make a peculiar impression on the sentient extremity of the nerves, unaccompanied by any visible change of structure. The two first may act in every tissue and on every organ. The action of the third we are less acquainted with, and there is probably less distinctness in its action upon some textures.

Poison is conveyed through the organism—1. By the nerves; 2. By the blood vessels. The first is termed sympathy, the second absorption.

The three general principles that preside over the treatment of cases of poison are—1. To remove it as suddenly as possible from the stomach or through the bowels; 2. To alter its chemical nature before it comes within the sphere of its action; 3. To control its poisonous action after it has commenced, by the excitement of a contrary action in the system. To these should be added diluting, and thus weakening the poison as much as possible.

All poisons may be divided into three great classes—1. Irritants; 2. Narcotics; 3. Narcotico-acrids.

The action of irritants is to irritate and violently inflame the part they touch.

The most usually attendant symptoms are—1. A sense of heat and burning in the tongue, mouth, throat, gullet and stomach; the heat is acrid and corrosive; 2. Acute pain, extending to the abdomen, increased by drinks and the respiratory movements; 3. Fœtid breath, nausea, vomiting a tough mucus, or of a brown, blackish sanguinolent matter, or clots of blood; 4. Fœtid and bloody alvine dejections; 5. Hiccup; 6. The skin pale and cold, and the perspiration cold and clammy; 7. The extremities cold; 8. Painful eruptions appear; 9. The face is pale or leaden colored, and affected with convulsive contractions; 10. Great prostration occurs; 11. The pulse is small, irregular and weak; 12. There is extreme anxiety and agony, and a desire to pass urine, which cannot be gratified.

The intellectual faculties are sometimes unimpaired, sometimes the nervous system is stupified.

The application of irritants externally corrodes the tissues chemically, causing redness, blistering and sloughing.

This class contains the concentrated acids and alkalies, all mercurial preparations, arsenic and its compounds, copper and its salts, antimonial preparations, the oxides and salts of tin and other metals, lunar caustic, nitre, sal. ammoniac, liver of sulphur, salts of barytes, phosphorus, powdered glass, cantharides, salts of lead, and all the acrid plants, such as gamboge, euphorbia, aconite, savine, &c. All these inflame the parts to which they are applied, but in different degrees.

Some, like the concentrated acids, corrode most powerfully, and occasion death in a manner somewhat similar to burns. Others, like arsenic &c., mix with the blood and destroy its vital properties.

The general effects that mark the action of this class of poisons upon the living organization, are—1. Inflammation of the mucous membrane, of the cheeks, throat, gullet, stomach, and intestinal tube; 2. Sometimes only congestion, but generally black spots on the stomach, caused by effusion of blood between its membranes; sometimes a perforation of its three coats; 3. The small intestines are sometimes found untouched, while the stomach and large intestines are highly inflamed.

There are some diseases producing effects very similar to this class of poisons. These are—1. Distension and rupture of the stomach; 2. Rup-

ture of the duodenum, biliary ducts, or uterus ; 3. Drinking cold water ; 4. Bilious vomiting and cholera ; 5. Inflammation of the stomach, intestines, peritoneum ; 6. Spontaneous perforation of the stomach ; 7. Mælaena and hæmetæsis ; 8. Cholic, iliac passion and obstructed intestines.

The diagnosis in some of these cases is extremely difficult. The first is disclosed on dissection. It is the most difficult to distinguish cholera from cases of poisoning. The test principally relied on is, that in cases of poisoning there is a sense or feeling of acridity in the throat that precedes the vomiting, in cases of cholera the same feeling succeeds it.

The first great axiom in all cases of poisoning is to prove the existence of the poison.

The problems to be solved are—1. Has poisoning taken place ? 2. What is the poison ?

The evidence in reference to both these is deducible from—1. The symptoms during life ; 2. The appearances presented by the dead body ; 3. The chemical analysis ; 4. Experiments and observations on animals ; 5. Moral circumstances.

I. Symptoms should be scanned in reference—1. To the suddenness of their appearance ; 2. To the rapidity of their progress ; 3. To their steady increase ; 4. To their uniform nature throughout their course ; 5. To their beginning soon after eating or drinking ; 6. To their sudden appearance while the body is in perfect health.

Most poisons, administered in large doses, manifest their effects suddenly.

As to regularity in the increase of symptoms, this is not always true. Some, such as strychnine, produce exacerbations and remissions.

There is little to be depended on uniformity in the nature of the symptoms.

Most poisons produce a different set of phenomena towards the close of their action, than those which marked their commencement. Instance arsenic, nux vomica, &c.

Symptoms appearing soon after eating or drinking, applies only to the commoner poisons, such as arsenic, &c. Enquiries in reference to this should regard—1. The number of persons present ; 2. The effect produced upon each ; 3. The dishes eaten ; 4. The state of the stomach, whether empty or full.

Different effects ensue from taking poison on an empty or on a full stomach. It proves much more certainly destructive on the first than on the last.

Very destructive poison, like arsenic, if taken in large quantities, so that vomiting is soon produced, is much less likely to prove destructive, than if taken in smaller doses. In the first case it expels itself through its own violent action.

If a poison be proved to have been given, and a death ensue, it must be further proved that the death was produced by the poison. To determine this, it should be inquired—1. Whether the symptoms have gone on progressively increasing ; or, 2. Whether they have altered their nature during the course of the illness ; and, 3. Whether the alteration was such as may occur in the case of poisoning generally, or of the special poison given.

II. The evidence derived from post mortem examinations is not now much relied upon, except in the case of a very few poisons. The effects of death from natural disease are much the same as those pro-

duced by poisons. The facts the most relied upon are—1. Unusual blackness or lividity of skin. But this also succeeds death arising from many natural diseases. 2. The rapid decomposition of the body. This, however, is apt to take place in all cases where death has occurred suddenly to a person in a previous state of health.

The practice has been resorted to of injecting poison into dead bodies with the view of convicting some one of murder. In such a case, however, there will be no inflammation, no marks of action by a living organization.

III. The evidence derived from chemical analysis is the most conclusive of all branches of proof. It is the most decisive—1. When the poison is detected in the stomach, intestines, or œsophagus, accompanied with marks of its action upon living organic textures; 2. When it is contained in the matter vomited; 3. In the articles of food, drink, or medicine, of which the sufferer has partaken; 4. In any articles found in the prisoner's possession, and unaccounted for.

Poison in the body, detected by chemical tests, affords the strongest proof that can be furnished. If none be found, however, it does not necessarily follow that none has been administered. It may not be found for the reason—1. That it may have been discharged by vomiting or purging; 2. It may have been absorbed; 3. It may have undergone chemical changes, been decomposed, and entered into new combinations, by which its former characters are masked or destroyed.

When poison cannot be found in the stomach, it has sometimes been in the tissues themselves, and been detected by boiling down the stomach and intestines.

It has been made a question how far decay of body renders the detection of poison impossible.

Acids become neutralized by the ammonia disengaged during the decay of animal matter.

Acids may be detected after several years' interment, but not always in the free state.

So also may the bases of the decomposed metallic salts.

Arsenic, opium and cantharides, undergo little change after a long interval of time. Hydrocyanic acid disappears very soon.

IV. The administering the contents of the stomach to dogs and other animals, is not very conclusive, as the poison may have been discharged beforehand, or absorbed, or decomposed, or so diluted as to have no effect on animals; or morbid fluids may be secreted during disease, which may be deleterious to them.

The leech has been found to be affected when placed in the blood of dogs killed by *nux vomica*.

V. Moral evidence may consist—1. In suspicious conduct on the part of the poisoner before the event; such as experimenting with poisons, &c. 2. In the purchase of poison a short time before the date of the alleged crime, and the procuring it under false pretences. 3. In the administration of poison, either in food, drink, medicine, or otherwise. 4. In the intent of the prisoner, such as establishing the fact that he could not have administered the poison innocently, or by accident. 5. In the fact that other members of the family have been similarly and simultaneously affected. 6. In suspicious conduct during the illness of the person poisoned. 7. In suspicious conduct after the person's death, such as hastening the funeral, &c. 8. To the personal circumstances of the deceased, and his death-bed declarations. 9. In the fact that a strong motive existed on the part of the prisoner to effect the death of the deceased.

The class of irritants is divided into five orders or groups—1. The acids and their bases. 2. The alkalies and their salts. 3. The metallic compounds. 4. The vegetable and animal irritants. 5. The mechanical irritants.

The acids are the sulphuric, nitric, muriatic, acetic, oxalic, and their bases are phosphorus, iodine, hydriodate of potash, bromine, and hydrobromate of potash.

The application of the mineral acids to living organizations is followed by peculiar effects—1. They irritate, inflame, and corrode the skin. 2. They shrivel and often corrode the inside of the mouth, changing it to white, and yellow if from nitric acid, and brown if from sulphuric. 3. They produce intense, burning pain in the throat, œsophagus and stomach, followed by eructations of gases. 4. The matter vomited is brownish, black, and mixed with shreds of membrane, or consists of coagulated mucus. 5. the patient is affected with tenesmus, and desire to evacuate the bladder. 6. The breathing is laborious. 7. The pulse is generally weak, but may be natural. 8. In some cases there is an eruption all over the body.

The fatal effects of poison by the mineral acids, generally occur between half a day and two or three days after they are administered.

The following are the organic appearances consequent upon the action of the mineral acids—1. The lips, fingers, and other parts of the skin, are spotted or streaked. 2. These marks are brownish, or yellowish brown, and appear, after death, like old parchment, or a burn, or vesication. 3. The mucus membrane of the mouth is generally hardened, whitish, or yellowish, and the pharynx is in the same state, or very red, and the gullet is often lined with a dense yellow membrane, the subjacent tissue being brown or red. 4. The peritoneum is generally inflamed, but not always. 5. The stomach, if not ruptured, is commonly distended with gases, and contains a quantity of yellowish, brown, or black matter, and is lined with a thick paste of disorganised tissue, blood, and mucus. 6. The pylorus is contracted, the mucus membrane, sometimes, but not always corroded. 7. In case the acid is diluted, there will be excessive injection, gorging, and blackness of the mucus membrane, without corrosion of the coats of the stomach. 8. There may be perforation of the stomach. 9. The duodenum is affected much in the same way as the stomach. 10. Where there is a chronic action, the stomach, pylorus, and intestines are greatly contracted. 11. There are often red spots on the surface of the stomach, and its coats are attenuated.

When all these appearances exist, we may conclude without chemical evidence, that poisoning has been caused by mineral acids.

In cases of poisoning by the acids, there should be an immediate exhibition of chalk, or magnesia, or of some mild fluid, milk, or oleaginous matters. There should also be a free use of diluents, to facilitate vomiting.

Tests of the Mineral Acids.

The universal acid test is that of reddening the blue tincture of tursole.

Free acids and even muriates have been detected in the secretions of the stomach.

The sulphuric acid has no odor; heated with charcoal it liberates the same odor as burning sulphur.

Sulphuric acid may be recognised by its caustic taste, specific weight, and by its evolving heat when mixed with water.

Evidence of the action of the nitric acid upon the organization is derived—1. From the appearance of the lips, tongue, and fauces. These are

all covered with orange colored spots. The mucus membrane of the œsophagus and stomach is coated with a layer of yellow matter, and often perforated. 2. From collecting the suspected matter, and boiling it over copper filings, when, if nitric acid be present, orange colored fumes will be evolved.

Evidence of the action of the muriatic acid is derived—1. From its action on the organization. The mouth, œsophagus, and stomach, are found of a deep red color, and bearing marks of excessive inflammation. There are extravasations of blood and perforations. 2. By dipping into the suspected fluid a glass rod moistened with ammonia, when, if nitric acid be present, dense white fumes of muriate of ammonia will immediately be observed.

The acetic acid is a poison only in its concentrated form.

The oxalic is a vegetable acid. Its usual symptoms are a dry and burning taste in the mouth and fauces, great pain, heat, and oppression in the epigastric region; pulse hard and contracted, the forehead bedewed with perspiration, the pupils are dilated, and the intellect wanders.

The most delicate test of oxalic acid is lime water, which throws down a copious white precipitate, which is an oxalate of lime.

Phosphorus introduced into the stomach gives rise to the same symptoms as the mineral acids.

The test is the peculiar alliaceous smell of the contents of the stomach, evacuated before, or collected after death, and the inflammable nature of any particles of the substance that may be discovered.

Iodine, in considerable quantities, produces loss of appetite, pain in the stomach, vomiting, purging, rapid and extreme emaciation, absorption of the breasts and testicles, small frequent pulse, great constitutional disturbance, and violent spasms.

Iodine, in its solid state, may be detected by its peculiar odor, and by the violet fumes it gives birth to when heated, and the fine blue color it produces with a solution of starch.

The tests of bromine, when pure, are, its color, its orange fumes, and its suffocating vapor.

The effects produced on the system by the concentrated alkalis, nearly resemble those of the acids.

Their taste is acrid, caustic, and urinous, and the matter vomited alkaline.

The test which applies universally to the alkalis, is, that they color the syrup of violets green.

The general mode of treatment is to make use of vinegar and lemon juice, in tolerably large quantities.

Pure potash acts as a powerful caustic. When swallowed it corrodes the stomach, and inflames its mucus membrane.

Sub-carbonate of potash has a styptic and urinous taste, and produces severe heat in the throat, retchings and vomitings of alkaline matter.

Nitrate of potash, nitre, produces a sense of internal coldness, excruciating pain, fainting, syncope, and death.

This may be tested by throwing it upon burning coals. It ignites with a crackling noise.

Glauber or epsom salts with which it is sometimes confounded, when thrown upon coals of fire exhibit a puffy appearance.

Ammonia, and its compounds, administered in excess, produces a sense of suffocation, followed by convulsions and death.

They may be recognised by their pungent and peculiar odor.

The metallic compounds embrace the most numerous class of poisons, among the most prominent is,

ARSENIC.

The form in which this is used is arsenous acid, which appears at first in white, transparent, and vitreous lumps, which gradually become opaque by keeping.

The symptoms depend much on the quantity taken, the state and condition of the system, and probably upon the temperament of the individual.

It may be administered—1. By the mouth. 2. By injection into the vagina or rectum. 3. By application to wounds or ulcers. 4. By inhaling vapors.

Arsenic taken internally acts in two ways—1. It induces inflammation of the gastro intestinal mucus membrane, or—2. It exerts an apparently direct influence upon the heart, lowering or arresting its action. Its effects may also be purely narcotic, or it may destroy life and leave no mark of disease to account for death.

Whatever be the application of arsenic, it almost invariably produces inflammation of the stomach.

The symptoms of poisoning by arsenic are usually considered under three heads—1. There are signs of violent irritation of the alimentary canal, and sometimes of the other mucus membranes, accompanied with great general depression, but not with disorder of the nervous system. Such cases generally prove fatal, and for the most part in from twenty-four hours to three days. 2. In the second class of cases there is little sign of irritation in any part of the alimentary canal. There is excessive prostration of strength, and frequent fainting, and death usually takes place in five or six hours. 3. In this class, life is commonly prolonged at least six days, or a recovery may take place. The signs of inflammation in the alimentary canal, are usually succeeded after the second or fourth day, by symptoms of irritation in the other mucus passages, and by those indicating derangement of the nervous system, such as palsy, or epilepsy.

The first symptoms generally observable, are, sickness, and faintness, which commence very soon.

After its commencement there is intense burning pain in the stomach, retching and vomiting ensue. There is a sense of dryness, heat, and tightness in the throat. The fluid which is vomited is yellow or green, and sometimes streaked with blood. There is sometimes diarrhea, a sense of burning heat, or actual inflammation, along the whole digestive tubes. The genito-urinary organs, of both sexes, are often irritated or inflamed, and their functions deranged. The respiration is often more or less impeded. There are convulsive twitchings of the trunk and extremities, violent cramps of the legs. The pulse is small and soon imperceptible. The extremities are cold, clammy, and livid. The countenance is pale and sunk. The tongue and mouth are dry, and often covered with white ulcers, aphthæ. Delirium supervenes, and death closes the scene.

When the sufferer survives for days, or weeks, the body may be covered with eruptions of various kinds.

Where the patient dies within four or six hours, we have faintness amounting to syncope, stupor, coma or convulsions.

In these cases the stomach may be found healthy. The poison being supposed to act on remote organs by nervous sympathy.

The inflammatory symptoms may disappear, and nervous symptoms, such as coma, palsy of the arms or legs, hysteria or mania may supervene.

Delirium, tetatus, convulsions and coma, may all result from the action of this poison.

When the inflammatory and nervous symptoms are both present, they infallibly indicate the action of the poison.

Two grains of arsenic are supposed sufficient to produce death.

When death has been produced by injection into the vagina, the labia are tumid and red, and other parts of the genitals inflamed and gangrenous.

The application of arsenic to a wound or ulcer, or even to the skin, causes tumefaction, pain, sensation of heat, vertigo, fainting, cardialgia, vomiting, thirst, ardor urinæ, constipation, trembling of the limbs, and delirium.

The appearances on dissection are not here so much relied upon. Its effects are the least visible of any, because death follows too soon to leave any marks.

If death occurs in a few hours, there will be no local inflammation, nothing but a slight local redness in the villous coat of the stomach.

Where life is prolonged more than one day, the inner coat of the stomach is inflamed, the stomach corrugated; its villous coat black, soft and brittle.

Black clots of blood in the stomach is a proof of the administration of arsenic.

Solid arsenic has been sometimes found adhering to the coats of the stomach, or among its contents.

There is often redness, but not ulceration of the intestines, except the rectum.

The mucus membrane of the windpipe and lungs may be inflamed, as also the inner surface of the heart.

The external organs of generation have been found distended and black, although that is not to be relied upon.

The chemical tests for the detection of this poison are very numerous.

Hot and fresh made lime water, added to a fluid containing arsenic, will precipitate one-thirtieth of a grain of the metal dissolved in one hundred grains of water.

Water, saturated with sulphuretted hydrogen, formed by the action of diluted muriatic acid on sulphuretted iron, produces an orange yellow precipitate.

Arsenic thrown on a burning coal gives white fumes, and a garlic odor.

Thrown on hot iron, without being mixed with some combustible substance, to reduce it the metallic state, it will not give out this odor. Phosphorus and lime emit the same smell.

By boiling a small portion of suspected powder with a dilute solution of potash, and adding to it a few drops of the solution of sulphate of copper, if arsenic is present it will be manifested by a yellowish green precipitate.

Milk is recommended to be drank freely in cases of poisoning by arsenic.

There is one extraordinary instance of the discovery of arsenic in a person seven years after death.

MERCURY.

The most important compound is corrosive sublimate.

This is fatal internally or externally applied.

Taken internally its symptoms are—1. An acid, astringent, metallic taste in the mouth; 2. A sensation of stricture and burning heat in the throat; 3. Anxiety and rending pains in the stomach, and in the whole of the intestinal canal; 4. Nausea, frequent vomiting; 5. Diarrhœa, sometimes dysentery; 6. Pulse small, tight and frequent; 7. Faintness, general debility, difficulty of breathing, cold sweats, cramps in all the limbs, general insensibility, convulsions and death.

This poison when fatal generally produces death at some period between twenty-four and thirty-six hours.

Its external application has produced sickness at the stomach, vomiting and diarrhœa, followed by debility.

The morbid appearances on dissection are—1. The lower part of the œsophagus is generally inflamed; 2. The stomach is sometimes eroded, and its villous coat covered with dark colored spots; 3. The liver is often found inflamed, and in females sometimes the uterus.

The chemical tests for this poison are numerous, such as

To a solution of it in distilled water add a dilute solution of subcarbonate of potash, and a copious precipitate of a red orange color will be formed.

A piece of copper exposed to the fumes of corrosive sublimate becomes whitened; and if rubbed with the hand, acquires a silvery hue.

One drop of nitrate of tin produces an immediate and copious dark brown precipitate.

If to a dilute solution of carbonate of ammonia a few drops of solution of corrosive sublimate be added, the whole acquires a milky color, and a white substance is precipitated which soon acquires a slate color.

If to a dilute solution of pure ammonia a few drops of watery solution of corrosive sublimate be added, a copious precipitation takes place of a white flocculent matter, resembling curds which falls to the bottom.

Lime water causes a precipitate of an orange yellow color.

A solution of corrosive sublimate tarnishes polished silver.

The remedy to be administered is large quantities of whites of eggs mixed with warm water. If they cannot be obtained wheat flour may be substituted.

ANTIMONY.

Antimonial preparations are butter of antimony and tartar emetic, and they may all become dangerous in small doses if they be not vomited.

The symptoms attending the action of antimonial preparations are—

1. A rough metallic taste is experienced; 2. Nausea, copious vomitings, hiccup, cardialgia, heat in the epigastric region, stomach pains, abdominal cholic, inflation, copious stools, syncope; 3. Small concentrated and accelerated pulse; 4. Cold skin, difficult breathing, vertigo, loss of sense, convulsive motions; 5. Painful cramps in the legs, prostration of strength and death.

The appearances after death are—1. Inflammation of the mucus membrane of the stomach and intestines; 2. Vascularity in the membranes of the brain, with serous effusions often in the ventricles.

Tartar emetic is decomposed by tannin.

All the preparations of antimony when exposed to a red heat with potash and charcoal yield metallic antimony,

Tartar emetic is white, when thrown upon burning coals it becomes black and affords metallic antimony.

Butter of antimony is white and melts like grease; when mixed with water it becomes turbid, and gives a white precipitate.

The remedies for this poison are decoction of oak bark and other astringents. Mucilaginous and diluent drinks should be administered.

COPPER.

The two of its preparations the most poisonous are blue vitriol and verdigris. They are both of a fine blue.

Verdigris produces a sense of strangulation in the throat, nausea, vomitings, coppery eructations, shooting pains in the stomach, gripes, inflated and painful abdomen, small, irregular, frequent and tight pulse, syncope, thirst, præcordial anxiety, cold sweats, weakness, cramps and convulsions. Dissection discloses a state of vascularity extending along the whole intestinal chain, accompanied with ulcerations.

The whites of eggs are resorted to as antidotes.

LEAD.

The preparations of this metal are litharge, red lead, white lead, and sugar of lead.

The destructive action of these preparations is slow.

Fatal consequences have sometimes occurred from the use of vessels or pipes made of this metal.

Water should not be drank which has run through leaden pipes, or that has stood in cisterns composed of that metal.

The fumes of lead are deleterious, and produce the colica pictonum, which is the effect of poisoning with lead. Its symptoms are—1. A colic, having frequent returns with increased severity. 2. Mouth dry, sickness at the stomach and vomiting. 3. The abdomen drawn inwards towards the navel. 4. Costiveness, paralysis of the fingers, hands and wrists. 5. Prostration of strength, a dry cough, a gradual wasting, and convulsive motions.

Dissection reveals a contraction of the great intestines, particularly the colon.

The remedies are sulphates of soda and magnesia, opium, warm bath, and warm fomentations.

Preparations of lead, when exposed to a red heat, with potash and charcoal, afford a globule of the metal.

Liquors containing sugar of lead have a sugary taste.

There is also a class of vegetable irritants, whose effects on the living system are more simple than those produced by the mineral.

When once a mineral poison has commenced taking effect, its effects are much more certainly destructive than the vegetable.

Among the vegetable are—1. Euphorbiæ. The poisonous principle is euphorbin. It is a gum resin. It causes a high degree of inflammation in the stomach of animals. 2. Celandine. This produces violent inflammation. 3. Savine is a powerful stimulant. 4. Poison ivy, applied to the body, excites burning, itching and swelling. 5. Poison sumach produces similar effects. 6. Lobelia has produced death when adminis-

tered in large and repeated doses. 7. Wake-robin produces swelling of the tongue. 8. Elder has proved poisonous to children.

The irritating vegetable poisons generally produce—1. An acrid, biting, bitter taste, burning heat, and great dryness of the tongue and other parts of the mouth. 2. Painful constriction of the throat, inclination to vomit. 3. Evacuations by vomiting and stool, pains in the stomach and bowels. 4. Pulse strong, frequent and regular. 5. Respiration difficult and accelerated, the gait tottering. 6. The pupil of the eye dilated. 7. Great depression, pulse slow, and death.

Sometimes there are convulsions, stiffness of the limbs, and acute pains.

The noxious substance should first be attempted to be removed by emetics, mucilaginous drinks should be administered.

Among the animal irritants are—1. *Cantharis vesicatoria*, the Spanish fly, the active principle of which is cantharidin.

It is usually administered in the form of white powder or of tincture.

Taken internally it produces—1. A burning heat in the throat, stomach, and other parts of the abdomen. 2. Inclination to vomit, and vomiting mixed with blood. 3. Copious and often bloody stools. 4. Excruciating pain in the belly towards the stomach. 5. Priapism, heat in the bladder, difficulty in voiding urine. 6. The urine is sometimes entirely suppressed. 7. The pulse is frequent and hard. 8. The jaws are fixed. There are convulsions, stiffness, and delirium.

The appearances on dissection, are—1. Inflammation of the stomach and intestines. 2. Fungous tubercles, and ulcerations have sometimes been noticed. 3. The bladder has been inflamed and ulcerated, and the external organs of generation gangrenous.

Mucilaginous drinks are recommended, warm bath, friction, and diluents.

It may be detected—1. By its appearance. The powder is of a greenish gray color, and offers brilliant points of a fine green. 2. It has an acrid and nauseous odor. 3. Placed on burning coals it disengages a fœtid odor, similar to that of burning horn.

The most poisonous animals are the viper and rattlesnake.

Their bite produces—1. Acute pain in the part. 2. Swelling first hard and pale, afterwards reddish and livid. 3. Faintings, vomitings, and convulsive movements. 4. The pulse is frequent, small, tense, and irregular. 5. The respiration is difficult. 6. Copious cold sweats. 7. Derangement of vision, and of the intellectual faculties.

The blood flowing from the wound is at first blackish, afterwards a fœtid humor issues. The skin is cold, the pulse scarcely perceptible, and gangrene sometimes occurs.

Some fish are poisonous, like the yellow billed sprat, producing convulsions and death.

Muscles have been found poisonous, producing irregular chills, pain of the stomach and head, oppression and difficulty of breathing, inquietude, itching, eruptions, convulsions, and sometimes death.

The mechanical irritants are glass, and enamel, in powder.

Inflammation may arise from irritation excited by their presence.

There are poisonous gases belonging to the class of irritants. These are—1. Chlorine, which in a gaseous state destroys life by producing great irritation of the bronchiæ. 2. Nitric acid vapor. 3. Muriatic acid gas. 4. Sulphurous acid gas. This produces difficulty of breathing, violent pain in the head, weakness of the lower extremities, palpitation, giddiness, and mania.

NARCOTICS.

This is another extensive class of poisons. Their primary action appears to be upon the brain, spinal marrow, and nervous system.

The symptoms are denominated narcotism, and are characterized by stupor, drowsiness, paralysis, apoplexy, and convulsions.

They are—1. A sense of weight in the head, giddiness, headache, obscurity of vision, stupor or perfect insensibility, followed by nausea, vomiting and profound sleep. 2. The respiration is stertorous, or slow. 3. The pulse is full, slow, and strong, becoming small, frequent, irregular, and intermittent. 3. The imagination is sometimes vivid. There may be gay or furious delirium, violent pains and convulsions. 5. The extremities are flexible. 6. There usually exists paralysis. 7. Impressions are unperceived, the pupil is contracted, or dilated, and profound sleep, or convulsions, precede death.

There are not many appearances here on dissection. The body usually remains a long time warm and flexible. There is sometimes congestion in the vessels of the brain, and in the lungs. The heart is flaccid, and the blood black and fluid.

The great distinguishing feature between this and the class of irritants, is, that the gastro-intestinal canal here offers no trace of inflammation.

OPIUM.

This is the juice of the common white poppy, and it is resorted to to assuage pain, calm the violence of organic action, and to terminate life. It is commonly used in the form of laudanum, which is a liquid.

The following are enumerated as the symptoms of poisoning by opium—1. Giddiness and stupor. 2. Respiration slow and stertorous. 3. Insensibility to external impressions. 4. Loss of the power of motion. 5. Eyes closed or half open, pupils contracted. 6. Pulse slow and full, but may be frequent and small. 7. Limbs and trunk relaxed, countenance ghastly, vomiting, convulsions and death.

The symptoms often vary in different individuals.

The ordinary duration of a fatal case is from 7 to 12 hours.

The effects produced by opium are somewhat similar to those caused by apoplexy, or epilepsy.

Opium produces three leading effects—1. It acts on the brain, causing congestion and consequently sopor. 2. On the general nervous centre, as an irritant, exciting convulsions. 3. On the muscles, as a direct sedative.

The effects of morphine on man are similar to those of opium.

Opium leaves but small traces of its existence in the organism. The face is pale, and the mouth sometimes filled with froth. There is generally turgescence of the vessels of the brain, and watery effusion in its ventricles, and on its surface. The lungs are generally gorged with blood. Lividity of the skin, and fluidity of the blood, is quite common.

Opium, and especially laudanum, is generally soon absorbed or decomposed.

Opium is detected—1. By its strong narcotic odor. 2. By adding to the suspected fluid, liquid ammonia, by which morphia, or the active principal of opium is thrown down.

The removal of opium, as soon as possible, should be effected by the sulphate of lime, or the stomach pump. The patient should be aroused and kept moving.

Hyosciamus, or henbane, is another narcotic poison. Its symptoms are—1. Giddiness, loss of speech, pallidity of the countenance. 2. Dilatation of pupils, insensibility of the retina. 3. Sometimes nausea, and vomiting; coma, and delirium.

The appearances, on dissection, often exhibit sanguineous injection of the cerebro-spinal apparatus.

Prussic acid is extracted from bitter almonds, cherry laurel, peach blossoms, and cluster cherry.

In large doses the effect is almost instantaneous. If the individual survive forty minutes, he will generally recover.

The appearances on dissection are equivocal. The agent is so destructive that its traces are not always the same. The heart and great arteries have been found empty, and the large veins gorged with black fluid blood. The lungs gorged, the windpipe red, its ramifications filled with a bloody froth. The veins of the brain filled, and itself soft. A strong odor, similar to that of bitter almonds, is perceptible soon after death, more especially upon opening the cavities.

The remedies are the most powerful diffusible stimuli, such as ammonia, and chlorine.

The tests of this acid are—1. Its peculiar odor, like that of bitter almonds. 2. Sulphate of copper forms with this acid, when rendered alkaline with potash, a greenish precipitate, which becomes nearly white on the addition of a little muriatic acid. 3. The salts of the protoxide of iron, if the acid be rendered alkaline by potash, produce a grayish green precipitate, which on the addition of a little sulphuric acid, becomes of a deep Prussian blue color.

This poison is obtained as distilled water, and as an essential oil from cherry laurel, black cherry, bird cherry tree, wild cherry tree, wild orange, bitter almonds, peach and mountain ash.

Cherry laurel furnishes a distilled water which is very poisonous, producing vomiting, convulsions, prostration of strength, diminished sensibility and death.

Bitter almonds furnishes an essential oil, which acts with great violence.

Narcotico-Acid Poisons.

This is an extensive class, and the poisons composing it are derived from the vegetable kingdom. They seem to partake of the qualities both of the narcotic and the acrid, or irritant classes. They produce both narcotism and inflammation in the tissues to which they are applied. Some cause spasms, without insensibility, or delirium. Some produce violent local symptoms. Orfila divides them as follows—1. Those whose principal symptom is delirium. 2. Those whose principal symptom is tetanus. 3. Those which excite convulsions, and cause impaired sensibility and sleep. 4. Poisonous mushrooms. 5. Poisonous grain. 6. Alcohol, ether, and empyreumatic oils.

The deadly nightshade is one of the most deadly of this class.

The poisonous principle is an alkaloid called atropine. The following are the symptoms—1. Dilatation and immobility of the pupil, insensibility of the eye, or confused and indistinct vision. 2. The conjunctiva is turgid with purple colored blood. 3. Prominence of the eye, appearing in some dull and heavy, in others bright and furious. 4. Great dryness of the lips, tongue, palate and throat. 5. Deglutition difficult or impossible. 6. Nausea, sense of weakness, syncope. 7. Inability to stand upright, bending forward of the body. 8. Continual movement of the

hands and fingers. 9. Lively delirium, accompanied by a silly laugh. 10. Aphonia, or inarticulate sounds, uttered with difficulty. 11. Ineffectual inclination to intestinal evacuation. 12. Very gradual return to health and reason, without any recollection of the preceding state.

This appears to produce a specific effect upon the eye, and wherever the poisonous principle is found, it will produce upon the eye its characteristic symptoms. This may be a test to determine its existence.

Thorn Apple, contains an alkaline principle, called daturine, which is highly poisonous. Its symptoms are—1. Intoxication, delirium, loss of sense, drowsiness, a sort of madness and fury. 2. Loss of memory, transitory or permanent. 3. Convulsions, paralysis of the limbs, cold sweats, thirst and tremblings.

Tobacco contains an essential oil, called nicotine. This, in large quantities, produces giddiness, headache, retching and vomiting, with diarrhea, accompanied with thirst, spasms, debility and oppression.

In case of death, dissection has disclosed the omentum red, without engorgement of its vessels, the small and large intestines gorged and red, the stomach natural, the lungs pale red, the heart empty of blood, the brain natural.

Hemlock furnishes an alkaloid, called conine, which is poisonous. The symptoms are, convulsions, furious delirium, and swellings of the face.

Dissection has disclosed some red spots round the pylorus, the intestines healthy, but the vessels of the brain gorged with blood.

Water Hemlock is a very fatal poison. Its symptoms are—1. Dazzling, obscurity of the sight, vertigo, headache. 2. A vacillating walk, anxiety of the præcordia, cardialgia. 3. Dryness of the throat, ardent thirst, eructatio, vomiting of greenish matter. 4. Frequent and interrupted respiration. 5. Tetanic contractions of the jaws. 6. Sometimes furious delirium and a swelling of the face.

After death have been observed bluish red spots on the skin, pupils dilated; vessels of the conjunctiva gorged; lungs sound, of a bluish red color, and gorged with blood; blood in the right side of the heart; brown spots on the mucus membrane of the stomach and small intestines, and these organs distended with gas; epiglottis red, and much mucus in the trachea; vessels in the brain highly injected.

Snake Weed, wild carrot, usually produces the following symptoms—1. Vomiting, pain in the bowels, tenesmus, occasionally purging. 2. Convulsions. 3. Dilatation of the pupils. 4. Feeble pulse and frothing at the mouth and nose mixed with blood.

When convulsions are not present, a deep sleep intervenes, the countenance is pale, and the extremities cold. The eye-balls and eye-lashes are mobile, while the pupils are firm and widely dilated.

Hemlock, *Drop Wort*, or *Dead Tongue*, is a very active poison. The symptoms are—1. Heat in the throat and stomach. 2. Delirium, stupor. 3. Nausea, vertigo and vomiting. 4. Generally convulsions and death.

After death, the lungs have been found distended, their vessels full of black and dissolved blood. The bronchiæ, trachæ and mouth contained a frothy and whitish fluid. The stomach was contracted and inflamed in its extremity and lesser curvature; its coats were thickened; the intestines were puffed up and their vessels injected.

Monks-hood, *Woolf's-bane*, *Aconite*, is an active poison. Its symptoms are—1. Burning heat in the tongue and gums. 2. Irritation in the cheek and a tingling sensation over the whole body, accompanied with twitchings. 3. The eyes and teeth are often fixed. 4. The hands, feet and

forehead are cold, and covered with a cold sweat. In one case idiocy was produced.

Dissection discloses—1. Redness of the inner membrane of the stomach and small intestines; sometimes of the throat and rectum. 2. Lungs dense, dark and gorged. 3. Cerebral vessels turgid.

Wall is an active poison of India. The principle is an alkaloid, called *aconitine*. The symptoms are, difficulty of breathing, convulsions and paralysis of the extremities.

Black Hellebore produces 1. Nausea, vomiting, delirium, contortions, coldness and death. 2. The circulation is arrested, and the respiration constrained.

Dissection reveals—1. An inflamed state of the whole digestive canal. 2. The lungs gorged with blood.

White Hellebore, *Indian Poke*, produces—1. Spasms, suffocation, loss of voice and coldness over the body. 2. An icy sweat over the body. 3. Great debility and almost imperceptible pulse.

Meadow Saffron produces—1. Retching, pains at the stomach. 2. Vomiting and purging. 3. Excessive thirst. 4. Delirium, pulse hardly perceptible.

Dissection discloses—1. Redness of the stomach. 2. Lungs gorged with black blood. 3. The heart flabby with black blood on the right side.

Purple Foxglove yields a poison, the active principle of which is called digitaline. Its symptoms are—1. Nausea, vomiting, giddiness, want of sleep. 2. Sense of heat through the body, pulsation in the head. 3. General depression. 4. Sometimes diarrhea, profuse sweating or salivation. 5. Convulsions. 6. Pupil of the eye dilated and insensible. 7. The pulse slow, small and irregular.

Dissection discloses—1. The internal membranes of the brain much injected with blood. 2. The inner coat of the stomach in some places red.

Squill in large doses produces sickness, vomiting, diarrhea and bloody urine, besides narcotic symptoms.

Ipecacuanha yields a powerful alkaloid, termed *emetin*, which produces vomiting, followed by lethargy and coma.

Dissection shows an inflamed state of the stomach and lungs.

The symptoms generally characterising the action of this class of poisons are—1. Nausea and vomiting. 2. Alvine dejections and pain in the abdomen. 3. Great agitation of the system. 4. Delirium. 5. Convulsive motions of the muscles of the face and limbs. 6. Pupils contracted. 7. Pulse small and irregular. 8. Sometimes complete narcotism, accompanied by insensibility and stupor. An attempt should be made to remove the noxious substance by emetics or the stomach pump.

There is another class of narcotico-acrids, which produce tetanic spasms, heighten rather than impair sensibility, and possess local irritant properties. Among these are,

1. *Nux Vomica*. The poisonous principle is an alcholoid, called *strychnia*, or *strychnine*. This is a very potent poison. Its symptoms are—*a.* Contracted pupils. *b.* Small pulse, cool skin. *c.* The hands and fingers affected by convulsive twitches. *d.* The legs rigid, and all the muscles tetanically contracted. *e.* Stiffness of the joints. *f.* Difficulty of respiration.

The appearances on dissection are mostly natural. There is some engorgement of the spinal plexus of veins and the pia-mater. The cerebrum is soft and somewhat congested, presenting bloody spots on cutting

into it; the mucus membrane of the stomach and intestines blanched, and lungs gorged with black fluid blood.

Its tests are—1. It has a dirty greenish-gray color. 2. A bitter taste. 3. An odor like powder of liquorice. 4. It inflames on burning charcoal, and on the addition of nitric acid, takes an orange-red color, which is destroyed by the addition of proto-chloride of tin.

II. *Bean of St. Ignatius* produces nearly the same effects.

III. *Upas Antiar* is an active poison, and is supposed to cause death by rendering the heart insensible to the stimulus of the blood. The heart, after death, is found to have lost its sensibility. In small doses, this acts as an irritant, but in large, causes convulsions and coma.

IV. *Camphor* produces—1. Languor, giddiness, confusion and forgetfulness. 2. Loss of consciousness. 3. Convulsion and maniacal frenzy. 4. Numbness of the scalp, a sensation of lightness in the body.

It has been supposed to act specifically on the genito-urinary organs, and that it acts on the brain, cerebellum, and great sympathetic, causing vertigo, vivid impression on the eye, headache, acceleration of the circulation, and excitation of the genito-urinary organs.

The morbid appearances are—1. Injection of the membranes of the brain. 2. Inflammation of the stomach and intestinal tube, of the ureters, urethra and spermatic cords. Every organ of the body exhales a strong camphorous odor.

V. *Cocculus Indicus* contains a poisonous alcholid, termed picrotoxicine. It produces—1. Vertigo. 2. Pallidity of countenance. 3. Tetanic spasms. It has also produced coma, foaming at the mouth, and convulsions.

VI. *Myrtle-leaved Sumach* produces the following symptoms—1. Signs of intoxication. 2. Livid countenance. 3. Convulsions and loss of speech. 4. Dilated pupils. 5. Comatose symptoms.

Dissection discloses—1. Injection of the membranes of the brain. 2. Lungs gorged, cardiac portions of the œsophagus inflamed, and membranes of the spinal cord injected.

This class should be treated with emetics, and if practicable with the stomach pump.

Poisonous Mushrooms. The following are the appearances rendering mushrooms suspicious—1. They grow in the shade, and in thick forests. 2. Their surface is humid, heavy, dirty, and appearance ugly. 3. They emit a nauseous, offensive odor. 4. They appear to have been bitten and abandoned by insects. 5. They grow quickly, and rot easily, and have soft stems to the surface of which morsels of skin are found attached.

The symptoms in general are—1. Gripping pains, inclination to vomit, vomiting and stools. 2. Heat of the stomach, languor, acute pains, cramps, convulsive movement of some part of the body. 3. Devouring thirst. 4. Pulse small, hard, tense and frequent. 5. Sometimes a kind of intoxication. 6. A low delirium and lethargy.

There are sometimes faintings and cold sweats. The effects manifest themselves from five to twenty-four hours after they have been eaten.

The appearances on dissection are very marked. Every organ seems affected—1. Violet colored spots appear over the integuments. 2. The cavity of the abdomen is inflated with gas. 3. The pupils of the eyes are contracted. 4. The stomach and intestinal canal appear inflamed and gangrenous. 5. Inflammatory and gangrenous spots occur on the membranes of the brain, in its ventricles, on the pleura, lungs, diaphragm,

mesentery, bladder, uterus, and fœtus of a pregnant woman. 6. The lungs exhibit inflammatory indications, and are gorged with black blood, so also are the veins of the abdominal viscera, liver, spleen and mesentery.

The remedies consist in emetics, cathartics, and enemas.

Spurred Rye is a morbid excrescence in the spike of the common rye. When this has been used as food it has produced two maladies. The first is a gangrene commencing in the hands and feet, with a sense of numbness and external coldness, a dusky or livid cuticle, great debility of mind and body, violent spasmodic contractions. It gradually spreads until the fingers, arms, nose, legs or thighs are affected, and some of them drop off spontaneously. The second is a typhus fever of malignant type, which quickly proves fatal.

Where it proves directly poisonous its symptoms are—1. A sense of creeping or tingling over the whole surface, and excessive heat in the extremities. 2. Heart burn and pain in the stomach and bowels. 3. Vertigo, cramps in the limbs, spasms in the region of the heart and stomach. 4. Delirium, stupor, and in some cases violent convulsions.

This poison operates on the system by a determination to the heart, brain, or alimentary canal, through the circulation.

There are no indications of morbid action sufficiently strong to account for the intensity of the previous symptoms.

The stomach and intestines usually present marks of inflammation and the membranes of the brain an appearance of increased vascularity.

The stomach should be immediately evacuated by emetics, or the stomach pump.

Darnel produces—1. Distraction of thought, indistinct vision, torpor, debility and drowsiness, followed by efforts to vomit. 2. Tremors of the limbs, great depression, difficulty of speech, and vomiting.

Alcohol taken in its pure state, and in large quantities, is an active poison. Large quantities produce—1. Coma. 2. The face is livid or ghastly pale. 3. The breathing is stertorinous. 4. The pupils are much contracted or dilated and insensible. 5. The comatose state becomes deeper and deeper until death supervenes.

Insensibility of the iris to light, indicates the greatest danger. Next, want of energy in the stomach.

The appearances on dissection indicate a determination of the blood towards the brain. There is—1. Congestion, and sometimes—2. Extravasation of blood in the brain. 3. Serum in the ventricles of the brain. 4. The lungs are dilated with dark fluid blood, the air passages are red.

Carbonate or acetate of ammonia must be given internally.

There is sometimes the occurrence of compound poisoning, in which two or more different kinds have been taken together. In such case we cannot calculate that the symptoms will be a mixture of those attending each, because the modification of each by the other, may produce a very different final result, from what the action of each singly would have done.

Arsenic and corrosive sublimate have produced a burning heat in the bowels, pain and severe thirst, a diarrhea, vomiting, convulsive twitchings, and mercurial ptyalism.

Arsenic and laudanum together have produced—1. Blood shot and heavy eyes. 2. Contracted pupils. 3. Pulse at 100. 4. Comatose symptoms. 5. Laborious breathing.

Arsenic fails to produce its appropriate symptoms when taken with alcohol.

Corrosive sublimate and laudanum produce—1. Purging, tenesmus, and bloody stools. 2. Violent salivation and dysentery. The stomach and intestines were found inflamed, ulcerated, and, in some parts, gangrenous.

Where laudanum and alcohol are taken, the excitement of the last has suspended the action of the first, but the stupor has subsequently occurred.

ADULTERATIONS.

Nature presents us with every thing in the form of simples.

The ripe taste of old rum or brandy is given to new liquor by oak saw dust, or tincture of raisins, and to give it a cordial flavor the poisonous cherry laurel water is made use of, white sugar of lead is included among the ingredients.

Gin or whiskey is composed of water, oils of vitriol, turpentine, juniper, cassia, caraways, and almonds, sulphuric ether, orrice and angelica roots, capsicums, grains of paradise, sugar, lime water, spirits of wine, and heading.

Brandy is adulterated with pepper, long pepper, capsicum and stramonium.

Cogniac brandy is imitated by mixing Spanish or Bordeaux brandy, rum, British brandy, British brandy bitters, cherry laurel water, almond cake, capsicums, grains of paradise, burnt sugar, or other coloring matter.

British brandy is a compound of gin, oil of vitriol, nitrum dulce, or nitrous ether.

The means of detecting this is by litmus paper. When the liquor is genuine, it is reddened; otherwise when it is not.

If adulterated with capsicums, or grains of paradise, the residuum after distillation will present a hot pungent taste.

Chalk will lie at the bottom of genuine spirit. In liquor adulterated either with sulphuric or nitric acid a milkiness appears.

Genuine spirit will burn away in a spoon, when ignited, without leaving any moisture.

Wines are adulterated—1. To give them a nutty flavor, with bitter almonds, or leaves of cherry laurel. 2. To give them a high flavor, with sweet briar, orrice root, clary and cherry laurel water, and elder flowers. 3. To render young and meagre wines bright, with alum. 4. To render faint colored port dark, with cake of pressed elder-berries, and bil-berries. 5. To color white wines red, with red sumach. 6. To give astringency to unripe wines, with oak saw dust, or sloes, or husks of filberts. 7. To flavor fictitious ports, with tincture of raisin seeds. 8. To give pungency, with a variety of spices. Most of these are recognized as poisons.

To clear cloudy or muddy white wine, the acetate or sugar of lead is added.

A bottle of cheap port wine is said to contain spirits of wine 3 oz., cider 14 oz., sugar $1\frac{1}{2}$ oz., alum 2 scruples, tartaric acid 1 scruple, strong decoction of logwood, 4 oz.

The fermentation of wine is arrested by the addition to it of potass and lime.

The following are the tests by which poisonous or deleterious substances in adulterated wines are discovered.

The salts of lead are detected by adding chlorine, and then successively sulphuric acid, hydro-sulphuric acid, chromic acid or soluble chromate.

When sulphuric acid is added without chlorine, the precipitate being dried and calcined with caustic potass, a small portion of the metallic lead will be obtained.

If equal parts of lime-water and wine be mixed, the presence of alum is then proclaimed by a slimy or muddy precipitate.

In adulterated wine, ammonia causes an olive-green precipitate.

Beer and ale are said to be adulterated with the following ingredients, viz: cocculus indicus, hard multum, a compound of indian berry, opium, &c., nux vomica, ignatius' bean, opium, tobacco, extract of poppies, henbane, bohemian rosemary, burnt sugar, and heading, which is green copperas, or sulphate of iron, capsicum, grains of paradise, molasses, liquorice root, wormwood, aloes, bitter oranges, quassia, lime, marble dust, oyster shells, hartshorne, &c.

Bread and flour have been found mingled with powdered gypsum, whiting, slacked lime, chalk, finely powdered granite, pipe clay, flour of garden peas and horse beans, potatoes, bone ashes, alum, sulphuric acid, sulphate of copper, subcarbonates of ammonia, potass and magnesia. Good bread is spongy, the adulterated easily crumbles.

Tea is imitated with dried leaves of the white and black thorn, elder, birch, ash, &c., and colored with catechu, logwood, verdigris, copperas, Prussian blue, carbonate of copper, and dutch pink.

Coffee is imitated by mixing ground acorns, horse chesnuts, horse beans, peas, nuts, barley, rice, wheat, parsnips and carrots, and by roasting blue succory or rye with a few almonds.

Chocolate is adulterated with vanilla and castile soap.

Confectionery and pastry are much adulterated. Sugar peas are composed of sugar, starch, and cornish clay; the red sugar drops are colored with vermilion or sap-green, red lead and copper.

The almond colored flavor of custards, blancmange, &c., is derived from the poisonous cherry laurel, the same that furnishes the prussic acid.

PERSONS FOUND DEAD.

Much will depend upon the situation and circumstances under which the body is found.

It should be observed whether there are tracks near, or traces of a struggle, or any destructive instruments near.

The points to be determined are three—1. Whether the deceased came to his death by the visitation of God. 2. Whether the death was his own voluntary act; or, 3. Whether it was the act of another.

The body should be closely observed. Its position, any wounds or injuries that present. All departures from the natural state should be remarked, such as color of skin, temperature of body, flexibility of limbs, wounds, contusions, luxations, ecchymosis, extravasation, swelling, and the fluid, if any, flowing from the nose, mouth or other cavities. The connexion of any wound with the vital organs, should be remarked.

If the causes of death are not apparent, they should be sought for in dissection, and the great cavities of the body, cranium, thorax, and abdomen should be examined. Where the appearances are natural they should be attributed to natural causes.

The following are appearances affording presumptions of injuries inflicted during life—1. *Hæmorrhage*. This is assumed as proving the fact of circulation, and therefore of life at the time of its occurrence. In order to be evidence of that, the large vessels must be found empty, and the blood of a florid red color, and of a natural fluidity. 2. *Ecchymosis* is a subcutaneous hæmorrhage, an effusion of blood into the cellular tissues. It arises generally from a contusion or blow. Its livid appearance is longest retained in the centre.

Real ecchymosis affords a fair inference of the existence of life at the time of the injury.

Sugillation or an approach towards putrefaction has sometimes been mistaken for it. It is therefore remarked—1. That ecchymosis is most apt to be found while the body is warm, and that sugillation rarely, if ever, occurs until after it becomes cold and stiff. 2. That ecchymosis exhibits the most livid appearance in the centre, while sugillation is equally livid through its whole extent. 3. Ecchymosis occurs wherever the injury has been inflicted, without any reference to the position of the body; sugillation is found about the back and loins, and most depending parts of the body. It results from gravitation. 4. In real ecchymosis, a congestion of thick, concrete blood will be found; in sugillation, the blood on incision will be found fluid. For some hours after death, and while the body is warm, severe blows will cause appearances similar to those caused by slight injuries during life.

Severe injuries during life produce swelling and other indisputable proofs of the existence of life.

Wounds, before death, are indicated by red, bloody, and separated edges; afterwards, by livid, bloodless, and close edges.

A fracture, immediately before death, will enable the examiner to find coagulated blood upon the bones and in the fissures. If sometime previous to death, there will be inflammation, and perhaps pus.

A muscle, broken by an injury after death, exhibits no effusion of blood, while an injury previous to death is accompanied by much bloody effusion.

Many important inferences are sought to be drawn from the skeleton alone.

The bones of children have a much larger proportion of gelatine in them than those of adults. In youth, the earthy matter about equals the gelatine. In old age the phosphate of lime greatly predominates. Sutures are then obliterated, and alveolar processes absorbed.

The bones of the female are smoother and rounder than those of the male.

There are great diversities observable in the pelvis of the two sexes. In the male the ilia are more erect, in the female more expanded. In the one the brim is more rounded, in the other more oval. In the one it is deep, in the other shallow. The male outlet is small, the female capacious. In the male the arch is contracted, in the female capacious.

Differences are also observable in the crania. In the female the perceptive region is more developed than the male, the reflective less, the lower central and lower back portions much less in the female than in the male, while the upper back portion, in the occipital region is much larger in the female than in the male head.

The hair, beard and nails appear to remain the longest unaltered of any part of the body. The hair is found perfect after the lapse of centuries, as on the Egyptian mummy. The hair, beard and nails are supposed to grow after death.

Another question regards putrefaction, its commencement, progress, and the signs by which it is indicated.

The changes noticed upon departure of life, are—1. Coldness and stiffness. 2. Livid color.

Young bodies continue warm and flexible longer than old ones.

In apoplexy and all sudden deaths, these primary changes are much longer in taking place than when the system has been reduced by gradual and long continued disease.

Putrefaction is the gradual return of structures to their original element. It is increased by heat, humidity and contact of air.

There are differences in the period of time required for the action of putrefaction upon the different parts of the body. The epidermis is rapidly decomposed. The cutis is first yellowish, soon becomes greenish, redish, and violet. The muscular tissue softens at first, takes a greenish tint, is gradually reduced to a jelly, and in fat bodies changes to soap, in others dries. The tendons, ligaments and cartilages long resist the putrefactive process. The bones and teeth longest resist it. The serous tissue becomes gray, soft, then from blue to black. The brain does not disappear for several weeks. The nerves remain permanent for some months. The lungs after some time become green, soft and shrunk, and lastly dry and black. Every portion of the face is destroyed between the third and fourth month. The thorax undergoes very little change for the first three months. The abdomen, after about three months, collapses, and its parietes become thin. Nearly three years are necessary to convert bones buried in earth into it.

Sudden death from natural causes results from sudden and violent attacks upon either the nervous, circulating, digestive or respiratory systems. The attack upon the cerebral system of vessels is usually apoplexy. That upon the circulating, rupture of an aneurism, rupture of the heart, ossification of its valves. That of the digestive, cholera. That of the respiratory, bursting of some blood vessels into the air passages, and idiopathic asphyxia.

The means of detecting apoplexy have reference—1. To the form of the body, the large head, short neck and plethoric frame. 2. To the food recently eaten, the posture in which the body is found, the ligatures that surround any part. 3. To the appearances on dissection, the evidences of sanguineous congestion in the brain.

The means of detecting ruptures or burstings, are—1. From indications afforded by their premonitory symptoms. 2. From appearances on dissection.

Violent passions or emotions give efficiency to the causes producing sudden death. Causes may have been sometime in operation, such as inflammation of the cerebral membranes, which may, of themselves, or under the influence of some violent passion, suddenly terminate in death. In such cases, the indication of morbid action will generally be apparent on dissection.

The second class of persons found dead, includes all those who have lost their lives from violent causes, including all cases of asphyxia.

Asphyxia is generally understood to mean the cessation of the heart's action, by means of the suspension of the function of respiration. This function may be suspended, either—1. From mechanical impediments, such as compression. 2. From want of power in the respiratory vessels. 3. From want of air. 4. From want of respirable air. 5. From irritating and deleterious gasses.

The characteristic symptoms of asphyxia are—1. A sensation of distress, and an effort to dilate the chest. 2. A struggle longer or shorter, according to circumstances. 3. A convulsive movement, with suffusion of the face, swelling of the veins, protrusion of the eyes.

After the exhaustion of the energies of the system, torpor succeeds, with relaxation of the muscles.

In death from asphyxia there is a great accumulation of blood in the pulmonary vessels, and in the right auricle and ventricle, and their great veins, while the left auricle and ventricle are comparatively empty. The liver, spleen and kidneys are gorged with blood. The lungs are distended. The blood has lost its arterial character, and is thick and dark colored. The vessels of the head, particularly the veins and sinuses, are full. The cerebral substance exhibits a number of red points, and often an effusion of serum in the ventricles. This is more especially the case if there has been struggling and violence of effort.

The following heads include the subject of asphyxia—1. Persons found dead from Hanging; 2. Drowning; 3. Strangling; 4. Smothering; 5. Lightening; 6. Cold; 7. Hunger; 8. Irrespirable gases; 9. Burns; 10. Wounds.

1. HANGING.

The questions mainly arising here are—1. Did the individual hang himself? 2. Was he hung by others? 3. Was he first murdered and then hung to conceal the real cause of death?

The solution of these questions involves the necessity of enquiring into the causes of death. These are two—1. Apoplexy, arising from the interruption of the return of the blood from the head, from the veins being more compressed than the arteries. 2. Suffocation, or exclusion of air from the lungs.

To these may be added compression of the nerves of the neck, laceration of the trachea or larynx, and luxation or fracture of the cervical vertebræ.

The signs of strangulation by hanging are :

1. The mark of the cord around the neck, forming a livid depressed circle. This is not always present, because ecchymosis can only happen where violence is done to the system during life, and the death from apoplexy may be so immediate as to leave the period of time insufficient for living phenomena to be produced, and hence in some cases no livid depressed circle may be perceptible.

The conclusions on this subject are—1. That the presence of ecchymosis on the neck is to be deemed a proof of death by hanging. 2. As it is occasionally wanting, its absence cannot be considered a positive proof of the contrary supposition. 3. When it is wanting the probability is that death has been caused by the supervention of apoplexy.

The cord may be so placed as to compress the blood vessels, or the respiratory passages, or the blood vessels and organs of respiration.

2. The second class of indications may be derived from the appearance of the face, chest, shoulders and countenance. The former appear swollen and livid, the latter distorted, the eyes open, red, or protruded. A prolonged struggle will give a swollen appearance to the cheeks, lips, and eyes. The most visible marks of distortion about the countenance and body, will be found where there are the fewest evidences of cerebral congestion.

3. The tongue, owing to the convulsive movements of the jaws, is sometimes wounded and thrust out of the mouth.

4. The fingers are bent and the hands nearly closed.

5. There is usually a bloody mucus or froth issuing from the mouth or nose.

6. In the male, at the moment of strangulation, there very commonly occurs erection and emission of semen. In females, the genital organs have been found red, the labia swollen, and the mouth of the uterus open—sometimes bloody discharges from the vagina.

The appearances on dissection depend upon the cause of death. If it be apoplexy, the brain will be gorged with blood, its vessels distended, and sometimes extravasation. If it be suffocation, the lungs will be engorged, the left side of the heart comparatively empty, and in the right side and its vessels more or less fluid blood. The blood will, in general, be more fluid in proportion as the death has been sudden.

Death may be complicated with apoplexy and suffocation.

The first question occurring should be, was the suspension before or after death?

To determine that, the body must be carefully examined, and all wounds, injuries, and marks of violence, and evidence of living action at the time of their infliction.

When the person has been first strangled and then hung, we should expect to find two distinct circles round the neck, the one ecchymosed, livid, evidencing that life was present when it was made, the other, a mere indentation, presenting no marks of living action, and being directly under the cord by which the body is suspended.

A second question often occurring, is, whether the individual has hung himself, or been hung by others? The *prima facie* presumption here is in favor of suicide, from the ease of committing the one, and difficulty of the other. To determine this question the body should be carefully examined, all injuries noted, surrounding objects observed, all indications of violence remarked.

It is also proper to consider what had been the moral character of the individual, and what had been the state or condition of his mind.

2. DROWNING.

There are two distinct modes by which death is induced in cases of drowning, viz.—1. By suffocation. This the most commonly occurs. A struggle takes place at the entrance of the trachæ, the glottis is convulsed, water enters the trachæ and bronchiæ, and some also the stomach. The struggle determines the blood towards the head. Respiration is suspended, oxygenation ceases, and dark venous blood is left to expend its qualities on the brain. The countenance exhibits turgescence and lividness. 2. The second mode is nervous or syncopal. Here the nervous system becomes inactive, and the vital functions are, for a time, suspended. There will here be no struggle, no froth in the trachæ, no material alteration of the internal organs, no cerebral congestion, but there will be paleness of the face and body, owing to spasm of the cutaneous vessels.

The first question presented for solution, is, whether there are any, and what, marks that distinguish death by submersion, from death previous to it?

The following indicate death by submersion—1. The head and face indicate one of two appearances, either—*a*. The head is bloated, the face red, and all the symptoms indicate a determination of blood there, which occurs in the apoplectic mode; or, *b*. The skin is pale, indicating the nervous or syncopal asphyxia. 2. The eyes are half open, and pupils

dilated. 3. The tongue approaches to the under edges of the lips, and these and the nostrils are covered with a frothy mucus. 4. There is excoriation at the ends of the fingers, and dirt or sand found under the nails. This indicates the last efforts of living individuals. 5. A great fullness of the blood vessels of the brain. The right side of the heart and its blood vessels filled with blood, the left comparatively empty. 6. The epiglottis is said to be found elevated, and the diaphragm depressed into the abdomen. 7. The blood is in a state extremely fluid. This generally characterizes all cases where the movements of life are suddenly arrested. The mass of blood cannot immediately accommodate itself to the change introduced by the suspension of the living energies. 8. A watery froth, which is sometimes bloody, found in the trachæ and bronchia, and the presence of a small quantity of water in the lungs. This is supposed to occur where air has been had access to during the struggle. To render a fluid found in the lungs a proof of death by drowning, it should be established—*a.* That the fluid found shall be identical with that in which the person has been drowned. *b.* That it has not been injected after death. *c.* That the body has not remained so long in the water in a vertical position, that by its weight it may have penetrated into the bronchiæ. 9. Another sign is the finding of water in the stomach. Water does not enter the stomach after death, and this is very satisfactory, provided the water be identical with that out of which the body is taken, and has not been swallowed during life, nor injected after death. 10. The fullness of the bladder, and reddened state of the viscera. These are not much relied on.

The two signs the most relied on, are, the finding a watery froth in the bronchiæ, and the presence of water in the stomach.

The immediate cause of death is suspension of respiration and exclusion of atmospheric air.

There are sometimes found marks of violence on the bodies of the drowned. These are divided into three classes—1. Those which are independent of any connexion with the circumstance of drowning, such are poisons, wounds, &c. 2. Those which may have resulted either from accidents attending submersion, or from previous homicide, such are contused wounds, fractures, luxations, &c. The means of accidental infliction, such as the height fallen from, &c. must be here examined. 3. Those inflicted after death. These are indicated by the absence of all those evidences of organic living action in the part injured.

Another point to be considered. is, the effect produced by immersion upon a dead body.

A dead body at first sinks, until the gases developed by putrefaction render it specifically lighter than water, and it ascends.

It generally rises about the fifth day.

The bodies of persons who have been strangled may contain a sufficient quantity of air to prevent their sinking when first thrown in.

A body after lying some time in water becomes partly converted into a fatty substance, termed adipocere, which resembles spermaceti.

This is not produced in much quantity under five or six weeks.

No very material change takes place in an immersed body before the fifth or sixth day.

The abdomen, when exposed to the atmosphere, is the first to experience a change from the putrefactive process, in the water it is the last.

At the expiration of two months, the skin on some parts of the abdomen, and on other parts, has been in a natural state.

Another question often raised is, was the drowning the effect of suicide, accident, or homicide?

The organization affords little or no ground upon which to base an estimate in reference to this.

The grounds of judgment are derived principally from surrounding appearances, coupled with the situation and condition of the body, and a knowledge of what were the characteristics of the individual.

These are, the previous state of the mind, the appearance of the banks, and the comparison of the wounds with rocks or projections, the marks of footsteps, appearance of a struggle, &c.

3. STRANGLING.

Strangling and hanging produce death in nearly the same manner.

There may, however, be luxation of the vertebræ, and injuries of the spinal marrow in the latter, not in the former.

The death by strangulation results simply from the suspension of respiration, and the interrupted circulation.

The mark of the cord or ligature is here more distinct and definite than in the case of hanging.

There is variety in the instrument used and the appearances presented in this mode of death.

The simplest is the Turkish mode, where the cord, or bowstring, is drawn so tight as to interrupt all communication between the lungs and the atmosphere.

The mark of the cord is here well defined.

In the common run of cases the strangulation is not complete. There is struggle, resistance, a rush of blood to the head, suffusion of the face, and distortion of the countenance.

In cases of strangulation the discolored circle will generally be horizontal, and at a lower part of the neck than occurs in hanging.

Dissection reveals pretty much the same appearances as are observable in cases of hanging, and generally the same medico-legal questions occur.

The first question that generally arises, is, was the deceased actually strangled, or was the rope fastened around his neck after he was dead?

In the last case the marks of death by strangulation will be wanting.

Strangling is sometimes accomplished by the hands, in which case the circle around the neck will be wanting, the discoloration partial, the bruises indistinct in their forms, and sometimes the marks of fingers about the neck.

In manual strangulation death is accomplished slower: there is more effort, struggling, longer continued respiration, the countenance more suffused, vessels of the head more engorged, lungs filled with blood, greater derangement in the system.

Another medico-legal question is to determine whether the strangulation is the effect of suicide, homicide or accident.

It would seem difficult to accomplish suicide by strangling, but it has actually been so accomplished.

Apoplexy sometimes occurs in unnatural positions of the body, and where a strong pressure is exerted on the neck, when it becomes difficult to distinguish it from strangling.

In such cases the predisposition to apoplexy, arising from the make of

the individual should be noticed, as also every thing connected with the situation and condition in which the body is found.

Another medico-legal question is whether proofs of strangulation can be found on the dead body sometime after decease, or interment.

Ten days after death it was discovered that a child had been strangled, from the fact that on the fore part of the neck, over the windpipe, was a softish furrow with a hardened ridge both above and below.

This mode of death has been detected nearly twelve years after its commission.

There was then a blackish mass holding together the third fourth and fifth cervical vertebræ, in the composition of which there was no tissue recognized, at the lower part were several twists of a cord, in which no knot could be found; its direction was horizontal.

4. SMOTHERING.

This mode of death is effected by covering the mouth and nostrils so as to prevent respiration.

The indications of death here are not very uniform, depending much upon the celerity with which it is accomplished. The following are the general appearances: the joints flaccid, features composed, red, turgid, lips dark, conjunctivæ injected, fluid blood on the left cheek, tongue not protruded, scarf skin under the chin much ruffled, surface of the true skin dry and brown, without blood or surrounding ecchymosis, integuments free from lividity except on the face, os hyoides and thyroid cartilages farther apart than usual, internal organs healthy, right side of the heart and its veins filled with fluid and black blood.

Death is so sudden as to leave no permanent marks in the organization. The veins present no turgescence, the skin no discoloration, the pulmonary vessels no engorgement.

5. LIGHTNING.

Death by lightning has been supposed to occur from an instantaneous and entire destruction of the vital principle. Also from disturbing or destroying the functions of the brain. From the destruction of the energy of the nervous system.

The appearances vary, but generally the countenance is pale, limbs flexible, muscles flabby and bloodless, blood in a fluid state, discoloration of the skin, presenting the form of streaks of a red color, and traceable in the direction of the spine. The body tends rapidly to putrefaction. This, however, is the case wherever there is a sudden extinction of life.

In determining the fact as to death by lightning, we should have reference to—1. The place where the body is found, whether in an open place or under a tree. 2. The time, whether it be soon after a thunder shower. 3. The indications of lightning in tearing and burning the things about or around him.

6. COLD.

Intense cold produces sleepiness, stupor, and numbness.

The first effect of cold is to contract the external capillaries. The central and larger vessels are gorged with blood.

The determination of blood to the brain may explain the lethargic tendency that generally prevails. The pulse has been found small and insensible.

Cold—1. Lessens the irritability and impairs the functions of the nervous system. 2. Impairs the contractile powers of the muscles. 3. Causes contraction of the capillaries, lessening the superficial circulation, and stopping the cutaneous secretion.

Dissection generally discloses nothing of a very decided character. The dura mater has been found congested and suffused, and its sinuses loaded with black blood. The pia mater is turgid and congested. The small intestines are deeply colored from injection of their vessels.

Circumstances, as the place where the body is found, its distance from any habitation, absence of marks of external violence, and want of indications of internal suffering, are relied upon to prove the cause of death.

7. HUNGER.

The appearances here exhibited are—1. An emaciated body having a fœtid, acrid odor. 2. The eyes red and open. 3. The tongue and throat dry even to acridity. 4. The stomach and intestines contracted and empty. 5. The gall bladder puffed with bile, and bile found scattered over the stomach and intestines. 6. The lungs withered. 7. The blood vessels usually empty.

8. IRRESPIRABLE GASES.

The carbonic acid gas, and the sulphuretted hydrogen gas, are those which the most commonly produce asphyxia.

Carbonic acid gas may be generated—1. From the passage of atmospheric air through the lungs. 2. From the fumes of burning charcoal. 3. From lime kilns, and cellars where wine, beer, and other liquors are in a state of fermentation. 4. From wells, marshes, and mines. 5. From the effluvia of plants.

The carbonic acid gas has a narcotic effect upon the system.

The symptoms are—1. A sense of weight, uneasiness, and pain in the head. 2. Ringing in the ears. 3. Giddiness. 4. A great disposition to sleep. 5. A rapid loss of strength. 6. Great difficulty of breathing. 7. A partial or total loss of sensibility. 8. Occasionally stertorous breathing, and froth at the mouth. 9. Coma and delirium, or convulsions.

The following appearances succeed death—1. The head, face, and neck are swollen. 2. The eyes are propelled from their sockets, but preserve their brilliancy. 3. The tongue is protruded, swollen, and inclines to one side. 4. The jaws are closed. 5. The face is livid, the lips of a dark blue color, the abdomen inflated, the body warm, the limbs flexible. 6. The countenance sometimes pale. 7. The blood vessels, particularly of the head and lungs, filled with blood. 8. The blood accumulated in the right side of the heart, and in the veins leading to it. 9. Effusions in the ventricles and bronchiæ. 10. The muscles soft and easily torn.

There is a loss of irritability in the muscles.

Death from this cause is indicated by the place and circumstances under which the body is found.

Sulphuretted hydrogen gas causes—1. General uneasiness, irregular respiration, agitated pulse, cold skin, and often general convulsions. 2. Loss of the power of motion and sensation. 3. The lips and face assume a livid hue. 4. The eyes lose their brilliancy and power. 5. The pupil becomes fixed and dilated. 6. The pulse small and frequent. 7. Respiration short, difficult and convulsive. 8. The heart acts violently, the mouth emits a frothy, bloody saliva, the extremities are relaxed, delirium is sometimes present, the agitation becomes excessive, and muscular spasm and convulsion occur.

Dissection discloses—1. Blood black and fluid. 2. Brain greenish and tender. 3. Bronchiæ red. 4. Lungs posteriorly gorged with black blood. 5. Stomach exhibiting symptoms of irritation. 6. Intestinal canal greenish. 7. Liver congested. 8. All the viscera exhaling the odor of putrid fish.

9. BURNS.

The three points to be examined here are—1. Whether the burning is the cause of death, or a mere cover for its perpetration by other means. 2. Whether there are any appearances infallibly indicating the action of fire upon the living body; and, 3. Whether there are cases of spontaneous combustion, and in what manner these are distinguishable.

As to the first, an examination must be made as to the means by which the death has been effected. As to the second question, it is supposed that the marks of re-action, left by the living principle upon organic structures, are sufficiently well marked to be generally relied upon. These are—1. A narrow line of redness near the burn, not removeable by pressure. 2. Blisters filled with serum. As to the third question, the balance of authority seems now to be in favor of spontaneous combustion.

The deductions drawn from all the recorded cases of spontaneous combustion are—1. The subjects were nearly all females, and they were far advanced in life. 2. Most of them were addicted to spirituous liquors, and were very fat or very lean. 3. The combustion occurred accidentally, and often from slight cause. 4. The combustion proceeded with great rapidity, usually consuming the entire trunk, while the extremities were occasionally left uninjured. 5. Water, instead of extinguishing the flames, sometimes gave them more activity. 6. The fire did very little damage, and often did not affect the combustible objects which were in contact with the body, at the moment when it was burning. 7. The combustion of these bodies left, as a residuum, fat, fœtid ashes, with an unctuous, stinking and very penetrating soot. 8. The combustions have occurred at all seasons, and in northern as well as southern countries.

The circumstances of the case will be sufficient to determine the fact of spontaneous combustion or not.

The burning of a dead body requires much fuel, and will be the last thing consumed.

In spontaneous combustion the most incombustible materials are the first burnt, as the liver and spleen, while the most combustible, as the hair, is seldom burnt. The things surrounding it are seldom burnt.

10 WOUNDS.

The first inquiry will be as to the cause of death. The circumstances that furnish inferences are—1. The position in which the body is found. 2. The arrangement of the dress. 3. The indications of struggle or the like around it. 4. The quantity of blood that has made its escape. 5. The kind of weapon that has been used. 6. Observation of the countenance, to determine whether there is suffusion of blood, indicative of struggling.

The medico-legal questions are three, viz.: to determine whether the wounds and death have resulted—1. From suicide; or, 2. From accident; or, 3. From homicide.

The previous history of the individual ought first to be known, his worldly condition, the general state of his mental faculties, &c.

It has been remarked that the countenance of the suicide appears hag-

gard, and the eyes sunk, and that in the victims of homicide there is paleness and marks of fear.

Where two or more mortal wounds, such as produce instant death, are inflicted, it is proof of homicide, because the suicide would have been incapable of the infliction of more than one.

Circumstances generally indicate an accidental death, such as being found at the foot of a precipice, with wounds corresponding with projections from it.

In case of wounds by a knife or pistol, the course of them should be examined, the direction, whether upwards or downwards, the point from which they have been dealt, whether by the right or left arm, the accessibility of the wound, and the length of the arm compared with the direction of the injury.

There are sometimes indications enabling the formation of a judgment, as to whether the person had fallen on the weapon, or it had been thrust into him.

There are cases in which mortal wounds have been inflicted, shortly after slight injuries have been sustained, in order to avoid the consequences of the one under color of the other.

Where fire-arms have been used we should—1. Notice whether the ball has passed through the body, or is left within it, and how far it has spent or retained its force. 2. Its direction, its entrance, and its exit.

The entrance hole is smaller, and its edges are inverted and depressed, while the exit hole is larger, with ragged, averted, and uneven edges.

The size of the hole is often larger than that of the ball.

The course of balls is often circuitous. They will course along convex and concave surfaces.

The musket ball makes a hole smooth and with circular and retracted edges; the rifle makes one ragged, and much larger than itself.

The circumstances from which a homicide was inferred in the case of a person found with his throat cut, were the following—1. The absence of any cutting instrument near the body. 2. From the presence of wounds in the hands. 3. The posterior part of the head appeared wounded. 4. There were a great number of cuts on or about the neck, some very deep and some along the chin. 5. Some of the wounds could only be made with the right, and others with the left hand.

PRESUMPTION OF SURVIVORSHIP.

The descent of property sometimes depends upon the fact of survivorship, and where there can be no positive proof of this, as in the case of a shipwreck at sea, where all are overwhelmed by a common calamity, the law, from the necessity of the case, permits presumptions to be drawn from the best physical conclusions we are enabled to deduce from the organization.

These questions have generally arisen in one of two cases—1. When the mother and child both die during delivery. 2. When persons of different ages are all destroyed by an accident alike common to all.

The first question becomes material in reference—1. To the husband's estate by the curtesy, that depending upon the child surviving its mother. 2. The heirs of the mother and child are by the laws of most countries different, and those of the one dying last are entitled.

In this case the imperial chamber of Wetzlar decided that the mother died first, for the reasons as is supposed—1. That the mother was ex-

hausted by the labor. 2. That the infant probably would not have died until deprived by the death of the mother, of its nourishment.

Recent reasoning on the subject has shaken the strength of this decision, many contingencies may deprive the child of life, such as—1. A difficult or slow delivery. 2. Pressure on the umbilical cord. 3. Detachment, partial or general, of the placenta, and consequent hæmorrhage. 4. If the fœtus be preternaturally large. 5. If it be a premature birth. 6. If convulsions be present the infant will first die.

To these may be added—1. The slender hold which the fœtus has on life. 2. The slight causes that may there extinguish the vital principle. 3. The greater stamina possessed by the mother.

Much depends upon the disease of which the mother died.

In cases of asphyxia, or death by accident, such as a sudden blow on the head, and where the health of the mother was good, the presumption may be in favor of the fœtus.

So also where the mother has died of an acute disease.

But where she has been subject to a long wasting disease, the presumption is in favor of her survivorship.

The presumption will here depend much upon the nature of the disease, character of the symptoms, and circumstances of the death.

The second question relates to the presumption of survivorship where persons of different ages are destroyed by a common accident.

The Roman law provided that if two individuals fell in battle at the same time, he who had not arrived at the age of puberty was to be deemed to have died first, but if a father and a son arrived at his majority, lost their lives together, the son was considered to have survived the father. The husband was adjudged to have survived his wife.

The code Napoleon, which in general contains the most reasonable provisions, enacts—

That if those who were under fifteen perished together, the oldest shall be presumed the survivor.

If they were all above sixty, the youngest shall be presumed the survivor.

If some were under fifteen, and others over sixty, the former shall be presumed the survivors.

Of those who had completed fifteen, and were under sixty, the male shall be presumed the survivor, where ages are equal, or the difference does not exceed one year.

If they were of the same sex, that presumption is admitted which opens the succession in the order of nature; of course the younger shall be considered to have survived the elder.

AGE.

Minority terminates at 21 years of age.

Those under 21 are liable for torts or wrongs, and for all frauds.

They are responsible for crimes at 14, and, upon strong circumstances shown, between 7 and 14.

How long a period of absence shall furnish a presumption of death?

In Scotland it requires 18 years. The French code 35 years. In South-Carolina an absence from the state of 7 years. In New-York, 7 years, or, in case of marriage, 5 years.

At what period is pregnancy possible, and how late can it occur?

A Swiss girl became a mother at the age of 9 years. Instances have occurred of women's having children as late as sixty years of age.

IDENTITY.

The inquiry here is whether the individual be the same person he pretends or states himself to be.

The sources of evidence here are—1. Congenital marks, or mal-conformations. These continue the longest, and are therefore entitled to be first consulted. 2. Wounds or injuries of the hard parts, as the bones, &c. 3. Wounds or injuries on the soft parts, leaving scars &c. 4. Scrofulous ulcers, leaving cicatrices. 5. The effect produced upon the system by working at particular trades should be observed. 6. Form of face, cast of countenance, make of body, physiognomy, pathognomy, and all those things that make up the idea of an individual.

INSURANCE UPON LIVES.

This is a contract by which the insurers for a certain sum, proportioned to the age, health, profession, and other circumstances of that person, whose life is the object of insurance, engage that the person shall not die within the time limited in the policy; or, if he do, that they will pay a sum of money to him in whose favor the policy is granted.

The object of the insurers is to ascertain the real state and condition of the insured, as to the probable continuance of life.

With this view certain queries are submitted to which the medical attendant is required to answer.

The questions the most frequently arising are those growing out of alleged frauds in the neglecting to furnish correct information as to the health of the insured, and the materiality of the information given or withheld, is to be sought from the physician.

It has been held that dyspepsia, not organic, is not a disease in its nature calculated to shorten life.

Where habits of intoxication were concealed, the policy was held to be avoided.

INSANITY.

Insanity may be said generally to be an aberration of the manifestations of the mind from their state of health.

It is defined by Dr. Spurzheim to be an aberration of any sensation, or intellectual power, from the healthy state, without being able to distinguish the diseased state, and the aberration of any feeling from the state of health, without being able to distinguish it, or without the influence of the will on the actions of the feeling, or the incapacity of distinguishing the diseased functions of the mind, and the irresistibility of our actions, constitute insanity.

Mind should be first studied in its healthy state, before its diseased manifestations can be properly understood.

Mind is a thing both to be observed in others and felt in one's self. Like life it is manifested by its action, and is developed through its organs.

Mind is made up of a great number of independent powers and faculties, each possessing its own constitution, and its own function.

Each faculty, like each bodily function, possesses its own appropriate organ, through which its powers were designed to be manifested.

The mind is divided into two departments—1. Intellectual. 2. Affective or moral. The first form ideas, the second furnish impulses, and feel emotions.

The intellectual department is again subdivided into—1. Those that perceive. 2. Those that reflect and reason.

The affective or moral is also subdivided into—1. Those that impel, called propensities. 2. Those that experience emotions, called the sentiments.

The intellectual faculties—1. Perceive. 2. Remember what they have perceived. 3. Conceive what they have remembered. 4. Associate what they have perceived and remembered. 5. The reflective judge; and, 6. All possess consciousness.

Insanity has its seat in diseased affections of the material organs through which the faculties are manifested. This is inferred—1. Because it is the most reasonable in itself. 2. Because it is in harmony with all other diseased affections. 3. Because it is in harmony with many of the actual causes of disease, as idiocy. 4. Because of the physical phenomena. 5. Because of the morbid phenomena.

The mental symptoms of insanity consist in the deranged or perverted action of the faculty or faculties affected.

They are as numerous as the faculties, and consist in the diminished, perverted, or exalted action of the faculties.

Minds alleged to be insane must not be compared with other minds, but with themselves, in their sane state.

Disease, however, does not always produce change. When external causes produce it, it will; but not when internal causes, such as the intense operation of the faculties, are productive of it.

There are two grand divisions of insanity—1. Where the faculties are weak, or incoherent, as in idiocy, imbecility, and dementia. 2. Where their action is exalted, or perverted, as in all the forms of mania, intellectual and moral.

Idiocy is that condition of mind in which the reflective, and all, or a part of the affective powers, are either entirely wanting, or are manifested to the slightest possible extent. It is generally congenital and incurable.

In idiocy there is a faulty conformation of brain. The organs are either preternaturally small, particularly in the anterior lobes, or enormously large from the effects of some disease.

In it there are the following characteristics—1. The features are irregular. 2. The forehead is low, retreating and narrow. 3. The eyes unsteady, glaring, meaningless, and objectless. 4. The lips are thick. 5. The mouth is open, and the limbs are often crooked.

In idiocy the propensities are the most uniformly possessed, and exercised, sometimes also some of the lower sentiments.

Some have the perceptive faculties, or some of them, without the reflective, and recollect names, numbers, and historical facts, without the power of comparing and combining them.

Imbecility consists in a preternatural deficiency, either in the intellectual faculties, or in the sentiments, or in both, coupled frequently with the strong action of one or more of the propensities.

Imbeciles, in regard to their intellectual operations, may be divided into two classes—1. Those which are the most defective in bringing their minds to act upon the materials furnished them; such lack the *reflective* power. 2. Those which experience the most difficulty in appropriating

the materials on which judgments are based, or who want perceptive power. The result in both cases is unsoundness of conclusion. In the first, because all that should go to form it, has not been duly weighed. In the second, because all has not been properly perceived.

There are reckoned five degrees of imbecility—1. Where a judgment cannot be formed respecting any new object, even when the necessary data are furnished, and the question is not one of intrinsic difficulty. 2. Where a confusion of times, places, and things, leads to deception with respect to subjects that are familiar to him. 3. Where he is unfitted for all matters that require more than a mechanical mode of action. 4. Where there is a clouded intellect and great insensibility. 5. Where there is a nullity of all intelligence, and an incapacity to be affected by any of the passions.

Imbeciles are incompetent to judge and decide where it is necessary to weigh opposing motives.

They can rarely travel beyond objects with which they are habitually surrounded. They have generally imperfect notions of property, of laws, society, government, justice.

Imbecility may be confined to one or more, or extend to all the faculties.

Evidences of imbecility are derivable much more from the conduct than the conversation of the individual.

Imbecility, like childhood, is characterized by frivolous pursuits, fondness for, and stress upon, trifles; inertness of mind, paucity of ideas, shyness, timidity, submission to control, acquiescence under influence.

Dementia is characterized by a general enfeeblement of all the faculties, moral and intellectual. It occurs as the sequel of many diseases, and often takes place at or near the close of life. It is distinguishable from general decay of mental power, by *incoherence*. Times, places, &c. are confounded together.

There are four degrees of dementia—1. Forgetfulness, especially in regard to recent occurrences. 2. Loss of reasoning power. 3. Loss of the power of comprehending the meaning of any principle, or proposition, however simple. 4. Loss of instinctive action, the mode of existence being merely organic.

The incoherence of dementia, differs from that of mania, in this, that the last consists in the exalted action of the faculties, the first, in their weak and imperfect action.

Intellectual mania is of two kinds. General, and partial. Both are characterized by delusion, or hallucination. This is of two kinds—1. Where there is a belief in facts that never existed. 2. When facts that do exist are carried to enormous and unfounded lengths.

General intellectual mania is accompanied with the utmost confusion and disorder in the action of the intellectual faculties.

The insane entertain a conviction of their sanity. In this form the associations are wild, strange and unnatural. The control of mind over itself seems to be lost.

The difference between intellectual and moral mania, is, that the first is the most manifested in the exaltation or perversion of ideas, the last in singularity of conduct.

Intellectual is often complicated with moral mania.

Partial intellectual mania is sometimes termed monomania. It is the derangement of those faculties that discern the relations of things that most certainly constitutes insanity. The monomaniac is himself generally

conscious of his derangement. The first appearance is usually in the entertainment of some strange and fantastic notion, such as that he is composed of glass, that he is dead, &c. The delusion is sometimes confined to a single topic, and at others takes a wider range. Sometimes a single delusion continues for years, without any perceptible change. At others, different hallucinations, successively or together prevail. We cannot mark out the boundaries that limit the insane delusion. The reasoning powers of the monomaniac on subjects not connected with his delusion, do not appear to be impaired.

Moral mania occurs when the organs of the affective powers become diseased, and their functions deranged or perverted. It is divided into general and partial.

General moral mania consists in a general perversion, exaltation, or derangement of function of the affective powers.

The moral maniac is apt to take violent antipathies, to harbor unjust suspicions, indulge strong propensities, and affect singularity in dress, gait, and phraseology, but the reasoning powers are not impaired. This form is not accompanied by delusion. It seems as if reason had lost its empire over the passions. It is characterized by every possible exhibition of propensity and passion. It often passes into intellectual, and becomes then complicated with delusion. It is often accompanied with an entire perversion of character, the pious becoming impious, the liberal penurious.

Partial moral mania consists in the perverted, exalted, or insane action of some one or more of the affective faculties.

The propensities are the most generally affected.

The derangement of amateness is attended by impetuosity of desire, gross obscenity, contempt of decency, and a headlong rush into the indulgence of morbid and unnatural appetites.

Acquisitiveness is often deranged in its manifestations.

Deranged destructiveness appears in two forms, the one of which inclines to incendiarism, and the other to the destruction of life.

Homocidal insanity presents two forms. In the one there is the influence of avowed motives, more or less irrational. In the other no motives are either acknowledged or discernible. Sometimes this form is found complicated with physical disease. Among females it is often connected with those changes in the system produced by parturition, menstruation, and lactation.

Combateness is often deranged, and then there is manifested great irascibility, ferocity, and ungovernable fury.

Self-esteem, in its diseased manifestations, inspires the belief of being an emperor, king, minister, general, high priest, bishop, duke, lord, prophet, and even God himself.

Deranged approbateness is productive of that class of symptoms in which is exhibited the wish and desire to be approved of by others, and to appear as persons of fashion and distinction.

Deranged cautiousness is a fruitful source of partial moral mania. It gives rise to settled gloom, startling apprehensions, terrific fears, and all that host of terrible phenomena embodied in the term despair.

Febrile delirium is not so much a primary as a secondary affection of the mental organs. It is characterized by talkativeness, forgetfulness of situation, confusion of times, persons, and places, and is attended with great muscular debility. The consideration of it arises the most frequently in the making of last wills and testaments.

Suicide proceeds from derangement, when it arises from pathological changes in the brain. It often proceeds from the morbid affection of cautiousness, which inspires a greater fear of the miseries of life than the evils of death. It is sometimes induced by a derangement of destructiveness. It has been observed to be hereditary, and to prevail epidemically.

Somnambulism seems to occur when some or all the mental faculties are preternaturally exerted, and when the senses are so modified as to be adapted to the state or condition of mind at the time prevailing.

After the paroxysm of extasis, or cataleptic somnambulism, has passed away, no recollection remains of any thing that occurred during its continuance, but on its again occurring, there is found the recollection of what occurred during the previous paroxysm, but a forgetfulness of what took place intermediate the paroxysms.

It is hereditary. The mental faculties here seem to possess the power of acting in virtue of their own internal force and energy.

Drunkenness is a species of partial moral mania. It commences with exaltation, and closes with exhaustion of bodily and mental power.

The propensities continue their manifestations longer than the intellect and moral sentiments, their organs are the largest, and situated at the base of the brain.

The effect of repeated inebriation is to render the organs of mind continually less liable to be influenced by their ordinary stimuli. Habitual indulgence, by keeping up a constant irritation of the cerebral organs, results in permanently deranging their structure.

Drunkenness is often periodical in its exhibitions. The habit often leads to delirium tremens, which somewhat resembles dreaming, the patient sleeps much, is always suspicious, full of alarms and apprehensions, and sometimes commits horrid acts of outrage.

The forms of alienation must be known in order to judge of their legal consequences. Legal rules can be only binding upon beings capable of understanding them, and having sufficient free moral agency to give or withhold obedience to them. They can therefore apply neither to the idiot nor the insane.

The difficulty lies in the application.

This application has generally been to the more distinctly marked forms.

The Roman law recognized those only whose understanding was weak or null, and those who were restless and furious.

The English law originally recognized two forms, viz.: idiocy and lunacy, both included under the term *non-compotes mentis*.

Lord Coke divided them into four kinds—1. An idiot who is such from his nativity. 2. One that becometh such by sickness, grief, or other accident. 3. A lunatic that hath sometimes his understanding, sometimes not. 4. He that by his own act depriveth himself of memory and understanding, as he that is drunken.

An idiot was held to be a person utterly destitute of all intellect.

The legal mode of determining the fact of idiocy or lunacy was, and still is, by the issuing, execution and return of a commission of lunacy.

Different consequences attend the finding of idiocy, and lunacy. Idiocy is presumptively a perpetual infirmity, and hence the return of that forever thereafter divested the person of his civil rights. Lunacy being

considered curable, the return of that only incapacitates during its continuance.

The commission issues to the commissioners, naming them, and directs them, through the aid of a jury, to ascertain and return the fact stated in the commission.

The finding, or return, must be strictly confined to the facts or things enquired of. Persons of unsound mind, cannot here alien, nor devise real estate, nor contract marriage.

A person may now allege his own unsoundness of mind to escape the consequences of his acts.

A person, although of unsound mind, is liable to pay for goods furnished him for necessities, and which were suitable and proper for him.

Mere mental weakness will not in law avoid the consequences of an act, but it lays a foundation from which fraud and imposition are easily inferable.

The proof of the derangement devolves upon the party who alleges it.

A permanent derangement being once established, its continuance is presumed, and to make acts valid, an entire restoration, or a lucid interval must be proved.

Lucid intervals seem to be a development of that law of periodicity, which pervades the animal economy and influences its diseases.

A lucid interval is proved only by showing a partial restoration, an interval in which the mind, having thrown off the disease, had recovered its general habit.

Organs, once diseased, are apt long to retain an irritable habit.

A succession of rational acts only can show a lucid interval.

Evidence of lucid interval should be as strong as that of derangement.

The law now makes a difference between the civil and criminal responsibility of the insane.

While it avoids his civil acts, it holds him responsible for his criminal ones. The evidence derived from the act has also a different force in civil and criminal proceedings.

In the civil, a rational act, rationally done, furnishes an inference that its source was rational, and the reverse.

In the criminal, the enormity of the act, as that of a parent killing his child, is considered as adding to and strengthening the proof of guilt.

In the trial of Hadfield, in 1800, the following positions were established—1. That it is the reason of man which makes him accountable for his actions, and that the deprivation of that acquits him of crime. 2. That the law will not measure the sizes of men's capacities, so as they be *compos mentis*. 3. That a person is accountable for his criminal acts where he is not for his civil. 4. That a total deprivation of memory and understanding is not required to constitute insanity. 5. That there is irresponsibility where there is hallucination. 6. That the act complained of should be the immediate result of the disease.

The capacity of distinguishing right from wrong has been the great test of insanity.

As this, however, depends upon a primitive feeling it can really prove nothing beyond its own healthy or deranged action. A knowledge of right and wrong implies two things—1. A perception of those actions

or things in regard to which right or wrong may be predicated. 2. The feeling of what is right or wrong in reference to such actions or things.

The first is intellectual, the second proceeds from conscienciousness.

The conclusions to which we may safely arrive in reference to this test are—1. That it is one, but not the only test. 2. That its absence divests of accountability. 3. Its perversion does the same. 4. A material lack of the perceptive faculties leads to the same result, divesting of accountability. 5. The perversion of the perceptive or reflective faculties, inducing delusion, destroys accountability.

Another test is the design and contrivance sometimes manifested. These, so far as means are concerned, is the work of the intellect; so far as regards cunning and secrecy, they are referable to secretiveness. They can not, therefore, be safely relied upon as tests.

Another test is delusion, the source of which is the intellectual faculties, and its presence therefore indicates intellectual mania, either partial or general. The absence of it, however, does not disprove insanity, because in derangement of the affective faculties that never form ideas there is no delusion.

There is no one certain infallible test of insanity.

LEGAL CONSEQUENCES OF INSANITY.

Idiots possess the elective franchise, and must appear, prosecute and defend, in person, in courts of law.

The law primarily regards the intent to injure, which is legitimately deducible from the act.

This pre-supposes the following considerations—1. A perception of the relations in which rational beings stand towards each other. 2. A sufficient of propensity power to lead to wrongful acts. 3. A sufficiency of intellectual power to perceive consequences, and the relativity of means to ends. 4. A sufficiency of moral power to feel the force of a wrong.

A fatal defect in either of these renders the individual irresponsible.

There is a *moral idiocy*, which is such an imbecile state of the moral faculties, from birth, as to render the individual irresponsible for his moral conduct.

Imbecility may obtain in different degrees. In the second there is a great proneness to sudden emotions. In the third there is incompetency to take care of property, and necessity of guardianship.

The court of chancery assumes the prerogative of taking care of all those who are incompetent to take care of themselves.

This power is the most required to be exercised during the latter part of life, when organs and faculties have become enfeebled.

Cases involving inquiries relative to incapacity occur the most frequently in conveyances of real estate and the making of last wills and testaments.

Lethargic and comatose affections and apoplexy are the kind of diseases the most apt to incapacitate from the making of last wills and testaments.

All diseases that primarily affect the organs of mind are the most likely to incapacitate. Those that primarily affect the other organs, such as consumption, afford no such presumption.

With the view of determining the validity of a will we should consider—1. Its provisions. If judicious and discreet, the presumption is in

its favor. 2. The attending circumstances; situation of testator; influences to which he has been subject, &c. 3. The strength or weakness of each particular faculty should be determined.

It requires less mind to make a will than a contract.

The maniac is responsible to make good, during his lucid interval, whatever injury he has caused to the property of another, under any insane delusion, on the principle that, as some one is to suffer the loss it should be him, though innocent, who causes the injury, rather than the other who has no agency in its production.

General intellectual mania, abounding as it does in hallucinations and delusions, exempts from legal liability.

Cases the most difficult for decision arise from partial intellectual mania, in which there is derangement of one or more faculties, or on one or more topics, and sanity in every other respect.

Where an act proceeds from, or is intimately connected with, an insane delusion, the actor is irresponsible.

Partial derangement should not be extended beyond its own morbid phenomena, but within that, the actor is irresponsible.

In calculation we must admit as true the insane delusion, and then the relation of the act to its cause is easily perceived.

In this form of insanity we must establish—1. The delusion, which must be entertained as true, and be false in fact. 2. The act must be directly traceable to the delusion, and either actually produced by it, or so intimately connected with it, as to lead to the presumption that it never would have occurred had not the delusion existed.

The same degree of partial insanity that absolves from contracts, ought also to relieve from the consequences of criminal acts.

Moral mania absolves from accountability, not because of delusion, but because the control of the individual over himself, and his actions, is destroyed.

Actions are volitions of mind carried to their extremest limit.

Volitions are formed under the influencing power of motives, which are presented to, and felt by, the affective or moral powers of man.

To hold a being responsible for an action, all its essential elements must be complete. This cannot be, if any one, or all the affective faculties are fatally defective.

Without moral liberty there can be no responsibility for crime.

The true test to determine whether there is, or is not moral liberty, is to ascertain whether the volition and action are or are not *irresistible*.

To determine the irresistibility of an act we must examine—1. The act itself. 2. Its circumstances. 3. The things and events that preceded and that succeeded it. 4. The presumed influences that were brought to bear upon the actor. 5. The agreement or contrast of the act itself, with the previous character sustained by the actor.

Presumption of insanity arises from the acts being committed in a public place, in open day, and in sight of witnesses.

Between homicidal monomania and murder, there are several distinctions.

In the first, the person slain, is often a wife, child, or parent. In the other not.

In the first, there is either no motive, or one entirely inadequate. In the other there is.

In the first, death is the end in view. In the other, it is the means.

In the first, much blood is generally spilt. In the other, no more than is necessary to accomplish the object.

In the first, none of the usual conveniences of crime, such as suiting time, place, and weapons, to purpose are consulted. In the other they are.

In the first, there are no accomplices. In the other, there often are.

In the first, the murderous act seems to be immediate and instantaneous. In the other, there is deliberation, and evidences of design.

If the act contradict the previous character, it furnishes evidence of insanity.

The establishment of the fact of delirium renders it necessary to prove a lucid interval at the time the act was done.

Less strict proof of this is required in fevers than in mania.

If the act sought to be invalidated has a direct connexion with the act of suicide, it might furnish a presumption of insanity.

The acts of a somnambulist during the actual paroxysm are invalid.

No acts then done can be imputed to him for crimes.

In the first stages of drunkenness, the individual is responsible for his actions. In the second and third, he is no more responsible than he is for his drunkenness.

The law excuses from the performance of contracts made during a state of intoxication, because—1. A person in a state of intoxication does not possess a consenting mind. 2. The parties to the contract, where one is intoxicated, are unequal, and it would be inequitable to permit the one to take advantage of the other.

The sober party to a contract is not released from his obligation, provided the drunken person on his becoming sober chooses to ratify it.

The drunkard is responsible in cases of torts and crimes. Delirium tremens exempts from the commission of crimes while under its influence.

There are some cases of difficulty where wounds or other injuries of the brain create a greater susceptibility to be influenced by alcoholic liquors.

In such cases it should be inquired—1. Whether the state in which the deed was done was induced by drinking. 2. Whether the individual knew that such a state in him was inducible by drinking.

The affirmative of both these should render him responsible for a criminal act.

Habitual drunkards, as well as idiots, lunatics, and persons of unsound mind, are taken under the protection of the law, and placed under the dominion of keepers.

FEIGNED DISEASES.

Feigned diseases never exist without some motive. The object is to avoid some evil or attain some good. One great object has been to escape from military service.

Zacchias has laid down five rules for the detection of feigned diseases—
1. Endeavor to arrive at the motive, ascertain physical and moral habits, state of his affairs, whether he is threatened with a prosecution

for some crime. 2. Compare the disease suspected to be feigned, with the causes capable of producing it, such as the age, temperament, and mode of life of the patient. Most diseases do not intervene without having furnished previous indications. 3. The third rule is founded on the aversion of persons who are feigning diseases from resorting to the proper remedies. 4. The symptoms present should be closely scrutinized, with the view of determining whether they are, in reality, such as should properly belong to the disease. 5. Follow the course of the complaint, and attend to the circumstances which successively occur. Thus, local inflammation, if genuine, will soon affect the general system.

All diseases are not feigned with equal facility.

Fever may be induced by stimulants, and a feverish state by violent exercise, and then the cold fit imitated.

It cannot be feigned a long while; if it be, real disease will be produced.

Stimulating agents taken into the system may sometimes be detected in the secretions.

The appearances of consumption have been produced by creating emaciation, by abstinence and drinking vinegar, and by mixing up expectoration with pus obtained from others, tinging it with blood from the gums.

Ligatures have produced interruption and derangement in the circulating system. Pressing the finger on the artery under the armpit has suspended the pulse.

Ligatures of small thread around the neck, have given rise to swollen and livid countenance.

Large quantities of the powder of white hellebore, have produced great and inordinate action of the heart and arteries.

Pain, under the forms of rheumatism, lumbago, and sciatica, is often feigned.

Pain in the external parts, is usually attended with heat, redness, change of color, or tumor, so that internal pain is the most generally feigned.

The internal pain of any large organ, is almost uniformly accompanied by symptoms which unequivocally denote its existence. Thus pain in the head causes loss of sleep, a fever, and sometimes delirium.

It should be ascertained whether the pain be throbbing, darting, or constant.

Ascertain whether a little opium produces sleep.

The presence of a violent pain is not consistent with a calm, quiet, long continued slumber.

An appeal to a strong mental aversion, has sometimes proved successful in effecting sudden cures.

Hæmoptysis may be feigned by pretending to cough, and then spitting out the blood created by picking the gums, or red paint may be held under the tongue.

Let the patient spit without coughing, and the saliva would still retain its red color.

Bloody urine has been feigned by adding blood to the excretion, or by using substances that have the quality of reddening it, such as the prickly pear, beet root, madder, &c. Subject the urine to heat, and in real cases a brown coagulum will be furnished.

Great emaciation has been produced in a short time by sucking a copper cent in the mouth, and swallowing the saliva.

Diarrhœa may be excited by a mixture of vinegar and burnt cork, or a solution of sulphate of iron.

Vomiting may be produced by some by pressure on the abdomen; by others by swallowing air.

Paralysis of the superior and inferior extremities is often feigned. Electricity and the actual cautery have effected cures in such cases.

Epilepsy is a disease often feigned. It should be observed whether all the symptoms are present.

In real epilepsy, warmth and perspiration are present during the fit, in the feigned they succeed it.

In the real, there is concealment of situation; in the feigned, a desire of publicity.

Convulsions are difficult of imitation for any considerable time, because of antagonist muscles.

Catalepsy is sometimes feigned.

Syncope and hysteria have sometimes been feigned, but they cannot resist the action of sternutatories.

There are some cases of a long continued state of somnolency in which there is the appearance of total insensibility, for a long period of time.

The scrofula has been attempted to be imitated by exciting ulcers in the neck and lips, with euphorbium, or other acrid substances.

Scurvy has been feigned by inducing a bleeding state of the gums by means of potash.

Ophthalmia has been very extensively imitated. It may be artificially excited by the application of various stimulants. It has been in this case generally detected by the rapidity of its progress.

The blindness produced by amaurosis has been often imitated. The pupils are usually dilated and fixed. They sometimes retain their contractile power after the sight is lost.

Deafness has been pretended, but this can generally be detected by close observation. Women have been found more successful than men in the feigning of deafness and dumbness.

Tumors and enlargements have been a fruitful source of feigned diseases.

The appearance of hydrocephalus has been given by opening the integuments of the head, near the vertex, and introducing air between them and the muscles.

The appearance of dropsy has been produced by inflating the parietes of the abdomen.

Swollen appearances may be produced very easily by the introduction of air into the cellular texture.

The appearance of anasarca has been produced by ligatures applied to the lower extremities.

That of ascites has been produced by the injection of water into the cavity of the abdomen.

Hydrocele has been imitated by means of injected fluids, or by the introduction of air through a small incision.

The appearance of hernia has been produced by inflation.

Ulcers have been apparently produced, or kept from healing, by the acetate of copper, quick lime, the juice of euphorbium, or other acrid plants.

False ulcers may be detected—1. By their borders. They will be less callous. 2. By their surfaces. They will be more superficial. 3. They will be less painful than real ones. 4. Observe the nature of the discharge, whether it be pus or sanies. 5. Observe the general habit, and if all appears healthy, ulcerous appearances may be suspected. 6. False ulcers may be easily healed.

One mode of creating disease has been by imbedding some coppery substance in a wound or cut made for the purpose. This has often caused the loss of a limb.

The feigning of wounds has been often resorted to for the purpose of deception.

Needles have been thrust into various parts of the body.

Mutilations have been voluntarily made. The thumb and fingers, one or more, have been often cut off.

The French soldiers have caused their teeth to be filed off, or extracted, so that they could not bite off the end of a cartridge.

Insanity is perhaps the disease the most frequently feigned of all others.

According to popular notions this is looked upon as consisting in general indiscriminate raving, and is, therefore, easily imitated.

There is, however, a method in real madness, which consists usually in the reference which all the ravings of the maniac have to some leading idea, constituting the delusion, or hallucination.

All this has reference to intellectual mania.

In suspected cases there should first be a reference to the motive, the good to be gained, or evil to be avoided.

If the insanity has been caused by a criminal act, that act will be likely to be a frequent subject of allusion by the really insane mind.

Impostors almost always over act. They keep their faculties in an excessive state of action.

Strict attention must be paid to the nature and character of the mental manifestations made. The different forms, based as they are upon the different faculties, are getting to be understood, and imitations difficult.

All the insane manifestations point to the delusion which generally affords the secret clue by which most or all their mental anomalies are explainable.

In cases of simulated insanity, the radical fact of delusion is overlooked.

The impostor assumes that if he is incoherent, his perceptions erroneous, and his ideas regardless of truth, or propriety, or proportion, he is acting out insanity to perfection.

Where there are wide variations from the truth, and the fact, there should always arise a suspicion of the reality of the case.

Those who have completely lost their reason, generally either do not reply to questions at all, or branch off to subjects that have no relation to the subjects addressed to them.

In simulated madness there is hesitation and appearance of premeditation in the succession of ideas, different from the abruptness and rapidity with which, in real madness, the train of thought is changed.

Another thing to be noticed is the moral displays of the patient, particularly towards those to whom he sustains intimate relations. Threatened injury to those will be likely to draw out *the man*, notwithstanding the disguise.

The plots and schemes of the insane threaten injury to his nearest friends, those of the impostor to his enemies.

The really insane pay little regard to the decencies and proprieties of life. This the impostor may fail to imitate.

Physical disturbances should also be regarded ; wildness of eye, peculiar cast of countenance and expression of features, evidences of febrile excitement.

Attention should be paid to the sleeplessness that accompanies the real disease. This the impostor generally fails to imitate successfully.

The really insane are often insensible to the action of many medicines that take hold of other systems with great force and effect, such as purgatives, emetics, and opium.

Attention should be paid to the causes and appearances that preceded the first occurrence of any well marked symptoms of the disease. In real cases they are rarely sudden.

The insanity of the impostor is generally sudden.

Peculiarities and habits ought to be attended to, such as intoxication and abstinence from it.

Nervous irritability, hereditary tendency, prior affection of the individual himself, should also be regarded.

Real insanity is characterized by morbid irritability, and displays of violent passions, without adequate cause. This the impostor cannot well imitate.

Maniacs have a bold unflinching look, which is difficult or impossible to imitate.

In real mania there is reserve and indifference, in its imitation there is a strong anxiety to produce an impression.

The simulation of idiocy can generally be detected by a reference to the past history of the individual, as the real disease is either congenital or has been produced by known causes.

Besides, the stamp of genuine idiotism no effort of mind can reach.

Imbecility is more easily simulated.

In the first degree there is such a mixture of stupidity and shrewdness as to be difficult of imitation. Where the interests of the simulator are involved, there will be shrewdness, where they are not, stupidity.

When the person criminales himself, it may be more safely concluded that the imbecility is genuine.

Senile dementia is sometimes simulated. This proceeds from the deficiency of mental excitement.

The simulator will generally base his indications on excess of mental excitement.

Artifice has often succeeded in detecting simulated mania.

Long continued observation will be likely to detect the simulation, as the mind not diseased will be likely after a time to return to its natural habit.

The French divide the means of discovering concealed insanity into

three classes, the interrogatory, the continued observation, and the inquest.

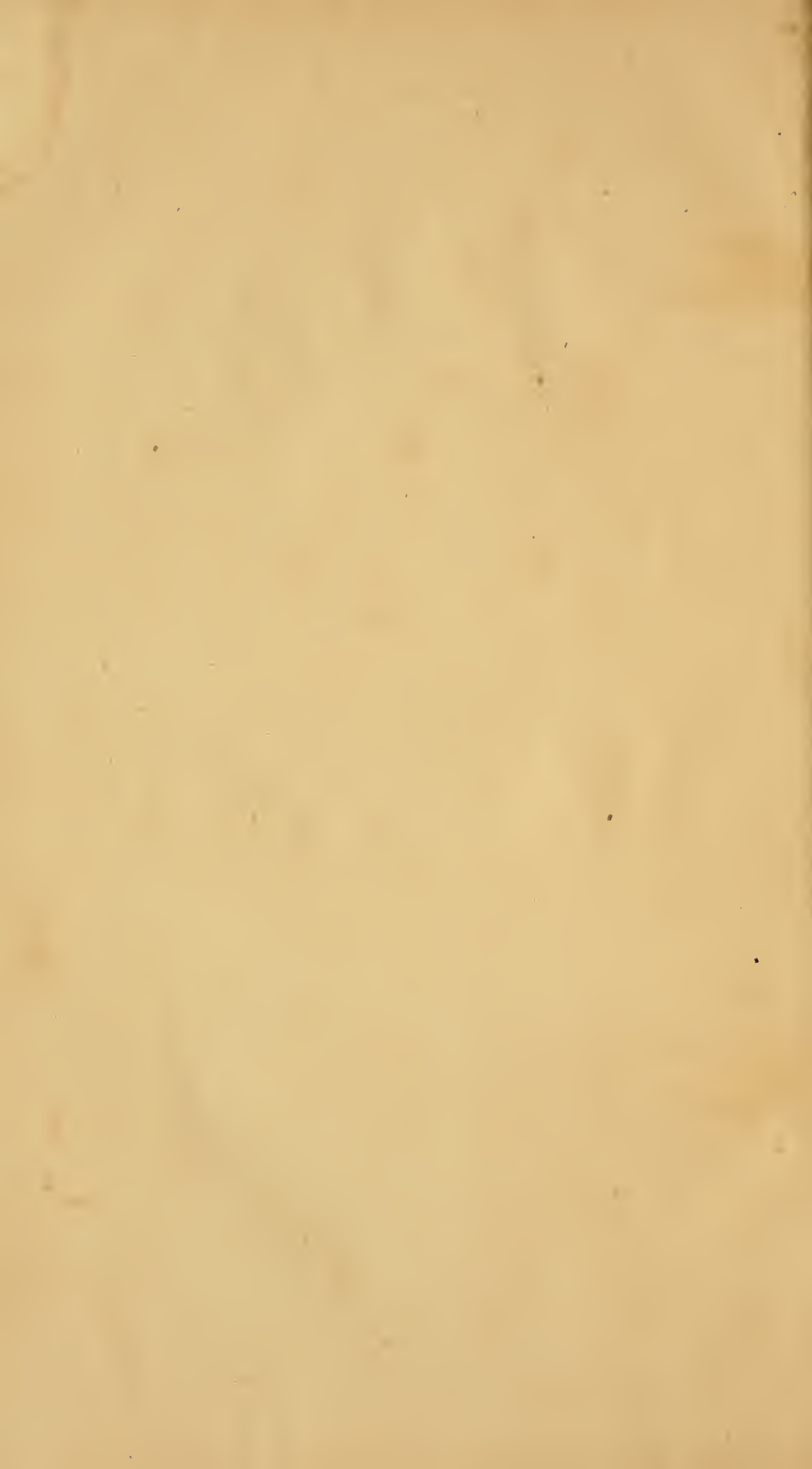
The first can be made use of only in a personal interview with the patient.

Moral mania will generally elude the interrogatory part, as the insanity is there more manifested in the conduct than conversation.

Continued observation should be made when it is least expected.

The inquest consists in collecting information respecting the patients' condition, before and after the presumed disease, and the causes suspected to have impaired his mind.







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